The essence of using problem-based learning technologies in teaching physical education disciplines

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Abstract. This article discusses the direction of improving the quality of training of professional teaching personnel using problem-based learning technologies when conducting physical education classes. The main difference between problem-based and traditional learning is seen in the goals and principles of organizing the educational process. The goal of problem-based learning is to master not only the fundamentals of science, but also the process of acquiring knowledge and scientific facts, and the development of the student's cognitive and creative abilities. Problem-based learning, like any other teaching method, is not universal, but it is an important part of the modern education system. Physical education is one of those subjects that can implement these approaches in its lessons, and problem-based learning will help achieve the main goal of education and training. This method contributes to the development of the ability to apply one's knowledge in different situations, helps to study phenomena from different sides and in different aspects, that is, it contributes to the formation of critical thinking.

Keywords: active forms of learning, problem-based learning in sports, heuristic methods, non-traditional methods, educational technologies.

Introduction

Reforming the education system necessitates the need to clarify existing provisions and recommendations, and for a number of them, to form a new approach to solving the problems of training special personnel. The diversity and complexity of these tasks make the problems of education especially relevant for modern theory and practice of all directions. Our people require professionals who are proficient in the methods and techniques of rational, creative, operational thinking, organizers and leaders of daily activities, focusing on the promising level of development of science, means and methods of pedagogical directions.

In modern conditions of development of humanitarian education in Uzbekistan, the primary task is to train professional specialists who are able to cope with any given task in the shortest possible time, while effectively applying developing modern technologies and using available funds.

The diversity and complexity of these tasks make the problems of education especially relevant to modern theory and practice of today's demands. Our society requires professionals who are proficient in the methods and techniques of rational, creative operational thinking,

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organizers and managers of daily activities, focusing on the promising level of development of science, means and methods of professional areas.

Thus, when we say that we are preparing a highly qualified professional specialist, we must also mean that the result of training such a specialist should be the formation of an oriented individual with creative systemic thinking, capable Not only to a critical understanding of educational material, but also to the creation of new scientific knowledge.

Methods

In this regard, the issue of choosing a technology for teaching students in professional disciplines remains relevant for us. In the textbook "Technologies of Professionally Oriented Training", in modern higher education didactics, general approaches to a unified interpretation of the concept of "teaching technology" have not yet been developed; there is no unambiguously recognized classification of them today, but most authors distinguish between traditional and innovative teaching technologies.

At the same time, it is proposed to classify existing learning technologies according to the orientation of learning objectives to the level of training, namely:

- traditional - reproductive, reproductive-algorithmic. The reproductive method of teaching is a method of educational activity,

carried out according to specific instructions, with the reproduction of knowledge and practical skills acquired by students previously. As for the algorithmic method, its main functions are: developing in students the ability to work according to certain rules and regulations; organization of laboratory and practical work according to instructions; developing the ability to independently create new activity algorithms;

- non-traditional - heuristic, creative.

In recent years, a number of non-traditional active forms and methods of teaching have been developed that can significantly increase the effectiveness of learning. Their classification is presented in the diagram.

However, it is not possible to qualitatively solve all the problems associated with the controllability of the learning process and the complexity of methodological support. Their resolution is largely facilitated by the use of technologies and teaching methods developed on the basis of the theory of the gradual formation of mental actions, problem-based learning and an innovative approach, especially when conducting practical classes.

The process of personnel training, including in training centers, is currently characterized, on the one hand, by an increase in the volume and complexity of the necessary professionally oriented knowledge, skills, abilities (competencies), and on the other hand, by the impossibility of increasing the duration of training in educational institutions. There is a discrepancy between the level of training of university graduates and the increased demands placed on them, and it is believed that one of the ways to resolve the contradiction between the growing volume of knowledge, skills and abilities (competencies) required by graduates and the limited study time is intensification.

Intensification in pedagogy is the search for new, more effective ways to resolve the contradictions between the sharp increase in the amount of information needed by specialists and the objective impossibility of increasing the duration of their training in educational institutions [1, 54].

Intensification of training is an intensification, an increase in its intellectual intensity, leading to increased effectiveness in achieving educational goals through the introduction of new progressive means, methods (techniques) of training and education, as well as advanced training of teaching staff. The main goal of intensifying education at the university
contribute to the formation of professional qualities that proactively meet the needs of HR practice.

Results

I would like to draw attention to the fact that the main function of intensification is not to saturate the lesson with the number of training places, educational and practical tasks being practiced, not to increase the number of work performed, adjustments, but rather to increase its intellectual intensity. That is, the task is not simply to perform a larger number of operations in one unit of time, but to perform a complex task that requires an intense process of comprehension. The main directions of intensification can be considered:

- transition from passive to active learning;
- formation of a technological approach to learning; creative development and personal self-development;
- maintaining and deepening unity fundamentality and professionalization of training content;
- development of individualization of learning;
- integration of learning with the activities of students and science, etc.

What is problem-based learning?

Problem-based learning is one of the types of active learning, based on organizing the search activity of students, on developing their skills for productive creative study of educational material.

Problem-based learning is based on the fact that the process of assimilation of knowledge cannot be reduced only to its simple perception, memorization and reproduction. Any knowledge can become the property of a person in the true meaning of the word only as a result of his own cognitive activity.

A feature of problem-based learning, in contrast to traditional learning, is that students are not given knowledge in a ready-made form. They acquire knowledge in the process of resolving problem situations on the basis of previously learned educational material, through analysis, comparison, generalization, and specification of factual material. Such work requires students to apply previous knowledge in new ways in different situations. The formation and development of cognitive professional activity and, on its basis, the cognitive interests of the individual constitute the core of problem-based learning in the teaching of professional disciplines.

The means of implementing problem-based learning, in addition to tasks and questions of an applied nature, are problem-based learning methods, which differ in the degree of increasing complexity and independence of students in solving educational problems:

- problematic presentation of knowledge;
- presentation with a problematic beginning;
- logical-heuristic method;
- research method.

The heuristic method is a system of cognitive tasks covering all or almost all stages of a problematic movement towards knowledge and combined with commenting, discussion or heuristic conversation and a heuristic search for a solution.

Heuristic presentation of educational material means the teacher's use of an explanatory and stimulating method. It involves students in finding ways to solve a problem, making a joint conclusion, "discovering" a law, rule, pattern, dependence, etc.

Heuristic learning is achieved by creating a system of cognitive tasks and conversations, that is, the teacher poses problematic questions and tasks to students, the solution of which is carried out during the lesson.

The educational disciplines "Theory of Pedagogy", "Family Pedagogy", "Pedagogical Skills" and "Pedagogical Technologies" taught at our department are studied by students from the first to the fourth year of study and have a clearly defined connection not only with each other, but also with the disciplines of other departments. And due to the fact that the process of teaching a course in these disciplines is certainly associated with the intellectual evolution of

students, the task arises of gradually introducing the logical-heuristic method into the learning process with a consistent transition "from simple to complex." That is, starting from the first year of study, from reading lectures with elements of problems when studying the provisions of the discipline, it is necessary to move on to a gradual deepening, complexity and expansion of the applied methods of the logical-heuristic method with gradual access to research solutions to applied professional problems at the final stage of studying the disciplines, and also when performing course design and final qualifying work. In this case, of course, all this must be done based on the acquired fundamental knowledge of the general structure of the studied directional patterns.

As part of the implementation of the logical-heuristic method, students are asked not only to complete the necessary work in the discipline, but also to answer a problematic question in a different, even if somewhat primitive, formulation: what is the reason for the difference? How can this be constructively explained? what is it for? or even simpler - why?

The last question is asked to 2nd year students, who are not yet required to conduct an in-depth analysis, make an informed decision and develop proposals for improving the design. But the presence of such a problematic question already stimulates cognitive activity and the search for an answer.

But then the questions follow: what is this connected with?, what design solutions can this be achieved?, what if we integrate with other concepts of these answers?, is there another solution?

Having formulated the main properties of the topic together with the students, we come up with a problem that we solve during the lesson, analyzing various designs of new material with studying their dynamics and calculation methods. Then possible solutions to the problem are consistently formulated. That is, we "immerse ourselves in the problem", during the solution of which we independently open the "doors of knowledge", the answer is found and understanding comes. Of course, this is often not an awareness of the essence of the ongoing processes. But this is already the height of the teacher's skill! When implementing the logical-heuristic method in teaching the humanities, when posing problems to students, one should carefully weigh the extent to which each of them follows from the content of the lesson and serves its didactic and educational purposes. It must be taken into account that posing problems that do not meet this requirement will only prevent students from understanding the essence of the issues discussed in class.

The problem is not an addition to the activity. Setting it at the beginning of the lesson determines its subsequent content and logic. The lesson should include a logically targeted system of questions and tasks that allow you to solve the problem and implement the goal of the lesson. Students should not be presented with problems for which they do not yet have the necessary knowledge to consciously search for solutions.

With the use of the logical-heuristic method with students in senior years of study, the formulation of the problem becomes more complicated. Unlike the first and second years of study, when the teacher formulates a problem and a question in a direct statement (how is it structured?, what is the capacity of the system?, list the components, etc.), the formulation of a problem in senior courses should be in the form of a complex sentence with subordinate condition ("if..., then...?", "maybe?", "let's assume...", "let's say...", "it's possible that if...", "what, if...?", etc.).

The problems of performing the work should have a logical continuation of the material already covered with its repetition, but from the perspective of the problems of a specific technical solution or design with a heuristic search for another, perhaps more optimal or rational, but not necessarily sufficiently effective. At the same time, it is necessary to strive to ensure that students learn to offer their own solutions, initially analyze them, select the most adequate ones, and learn to see ways to prove them. However, achieving maximum results through the use of productive learning technologies becomes almost impossible without the

active and interested participation of students in the process. And here it is very important for the teacher not only to interest students, but to captivate them! To draw you into an intellectual game, so to speak. Sometimes this is difficult to do, not even because the student is not interested, but because the level of the heuristic problem being formulated does not correspond to the students' existing knowledge.

Sometimes a student is simply not ready for this form of conducting a lesson, even psychologically. Yes, he can give a prepared answer, reproduce knowledge of the material, but at the stage of putting forward a critical opinion or assumption he comes into a kind of "intellectual" or "psychological stupor."

Fear and hesitancy to draw independent conclusions are sometimes caused by the desire to give only the only correct answer, even when the correct answer does not exist.

Problem-based learning with the entire set of means for its implementation, including the logical-heuristic method, with its systematic and deliberate use in all types of training sessions, can become a useful "tool" that allows you to improve the quality of training of professional personnel in any field of activity. It is necessary to take into account that the saturation of classes with logical and heuristic methods must be carried out systematically, with a gradual complication and intensification of the learning process.

Of course, I would like to give a number of recommendations for the implementation of the logical-heuristic method in the study of the humanities. This list can be supplemented depending on progressively influencing factors in the educational process.

1. The introduction of the logical-heuristic method into the learning process should be carried out gradually, with a consistent transition "from simple to complex."
2. Formulate the "problem" in advance and try to avoid impromptu statements. Formulate the problems based on the course of related and previous disciplines. When posing problems to students, one should carefully weigh the extent to which each of them follows from the content of the lesson and serves its didactic and educational purposes.
3. Do not pose problems to students for which they do not yet have the necessary knowledge to consciously search for solutions. The basis of the problem situation is to place the contradiction between knowledge and ignorance.
4. When formulating a problem, depending on the complexity of the provisions being studied, it is necessary to include consideration of two or three or more problematic situations. In this case, it is necessary to formulate one problem within the framework of one educational question.

Considering the above, problem-solving as a teaching principle is a didactic principle. Its essence is this: when organizing the learning process, the content of the educational material is not presented in a ready-made form, but is given as part of a problematic task as an unknown unknown. It can become known and assimilated only as a result of their own search mental activity to solve a problematic problem. Thus, problem-solving as a principle of teaching at a university not only requires organizing the content of acquired knowledge in a special way, but also dictates a special methodology for its assimilation - through the mental actions of students to search for this content. Problem-based learning does not absorb the entire educational process: not every educational material contains problematic knowledge and not every problematic knowledge can be presented in the form of a cognitive task. When posing educational problems, according to the scientific research of O.V. Gordeeva, causing intellectual activity in students, it is necessary to be guided by the principle of expediency and comply with a number of conditions:

firstly, the teacher gives students a practical or theoretical task, by completing which they must gain new knowledge or ways of acting. The task should be based on existing knowledge; the knowledge to be assimilated must constitute that still unknown method of action, without finding which the completion of the task turns out to be impossible; completing the task

should create a need for students to obtain the missing knowledge, i.e., interest should appear as a motive for action.

secondly, the proposed problem task must correspond to the intellectual capabilities of the students, namely, be quite difficult, but solvable thanks to the existing thinking skills, mastery of a generalized method of action and a sufficient level of knowledge.

thirdly, when presenting a problem task, the real level of knowledge of students should be taken into account. If there is no knowledge sufficient to complete the task, then it is necessary to provide explanations to fill the existing gap.

fourthly, the question of the assignment for students will be problematic only if it coincides with the question that arose in his own mind when receiving the conditions of the assignment.

fifthly, a problematic situation on the same issue to be learned can be created by different types of tasks: either students explain known facts (learn to apply theory in practice), or feel the need to gain new knowledge (an effective motive for learning activity is created - interest).

sixthly, if students, having found themselves in a problematic situation, were unable to get out of it (they were unable to theoretically explain the facts or did not realize the need for new knowledge or a method of action), then the teacher must formulate the problem that has arisen and thereby, as it were, fix it , indicate the reasons for not completing the task and begin to explain the educational material necessary to solve it [2, 10].

Discussion

Thus, a problematic situation can prepare favorable soil for the assimilation of knowledge, since students realized that old knowledge does not allow them to complete the task, realized the need for new ones and are interested in obtaining them. From this moment, activity moves from the stage of creating a problem situation to the stage of managing the process of assimilation of knowledge through the organization of mental activity. Compliance with certain conditions is necessary here as well.

1. The explanation of educational material should follow the questions students have in a problem situation, and thereby satisfy the need for new knowledge caused by these questions, meet the cognitive interest that has become the motive for their educational activities.
2. When presenting educational material, the level of knowledge of the students must be taken into account. If students have managed to solve a problem by the power of their own thinking, then there is no need to reveal what they have learned. But, if it was not possible to solve the problem, and the problematic situation caused a need for knowledge and a willingness to listen to the teacher's explanation, then, of course, the presentation of the material should contain not only logical arguments, but also a demonstration of a new pattern or a new way of acting on specific life facts, processes, events.
3. If training takes place in the form of a laboratory or practical lesson, a seminar-discussion or a workshop, then the trainees must first obtain and then use the necessary information or methods of action to complete the problem task.
4. If a problem task turns out to be too difficult, then it can be divided into a number of private problem tasks so that the solution to each of them becomes accessible.

Thus, from the conditions relating both to the creation of problem situations and to the process that makes up the content of problem tasks, it is possible to identify criteria for their effectiveness - increasing the level of cognitive independence of students, the depth and strength of knowledge acquisition, increasing the level of complexity of the tasks being solved, the direction of personal development and etc [3, 18].

In the modern theory of problem-based learning, two types of problem situations are distinguished: psychological and pedagogical. The first concerns the activities of students,

the second represents the organization of the educational process. A problematic situation is created with the help of activating actions, questions from the teacher, emphasizing the novelty, importance and other distinctive qualities of the object of knowledge. Problem situations can be created at all stages of the learning process: during explanation, reinforcement, control. The technological scheme of problem-based learning (statement and resolution of a problem situation) is as follows: a teacher, who has information and is able to help, creates a problem situation and directs students to solve it [4, 25].

The student analyzes the problem and is in search of its solution. If he managed to solve the problem, then a new problem situation is created. If it was not possible to solve the problem (the problematic situation has caused the need to acquire new knowledge, abilities, skills), the teacher reveals the content. Thus, students are placed in the position of the subject of their learning and, as a result, they develop new knowledge and master new ways of acting. The difficulty of managing problem-based learning lies in the fact that the emergence of a problem situation is an individual act, which requires the teacher to use a differentiated and individual approach. The implementation of real problem-based learning at a university at the present stage raises a very important question, which is a problem in itself: "What training should teachers undergo in order to successfully cope with this type of learning?"

So, we can conclude that the teacher must master both explanatory and research teaching methods. Acting as an organizer of problem-based learning, he is called upon to act more as a leader and partner than as a source of ready-made knowledge. The experience gained in the process will allow him to:

1. Subtly sense the problematic situations that students face and be able to pose real learning tasks in an understandable form.

2. Act as a coordinator and partner. In the course of exploring various aspects of the problem, help individual students and groups, but avoid directive techniques.

3. Try to captivate students with the problem and the process of its in-depth research, stimulate creative thinking with the help of skillfully posed questions.

4. Show tolerance for mistakes made in trying to find your own solution.

5. Offer your help or refer to the necessary sources of information only in cases where the student begins to feel hopeless in his search.

6. Encourage a critical attitude towards the research process, suggestions for improving work and putting forward new directions for research.

7.Complete class discussions, research and work on implementing solutions into practice before signs of loss of interest in the problem appear.

8. While maintaining motivation, allow individual students to continue working on a problem on a voluntary basis while others find ways to approach a new problem [5, 130-131].

Thus, mastering the process of problem-based learning becomes an independent didactic goal. The main content here is the educational problem, the process of search educational activity, and the methods are the active cognitive activity of students, consisting in searching for and solving complex problem situations. The main concepts of the concept of problem-based education are "problem" and "problem solution". The problematic situation is the initial appearance of this method, which is a subject that is fully or partially understood by the subject, which requires the acquisition of new knowledge, methods and behavioral skills. If a student does not have the foundation to find ways to cope with difficulties, he or she will not be able to solve a problem that is not reflected in his/her mind. Reasoning begins when a problem situation is understood, based on understanding, expression, complexity of existing knowledge and skills, and research experience. Problem situations must meet the goals of developing a knowledge system: be accessible to students; must provoke their own cognitive activity and activity; tasks should be such that the student cannot complete them based on existing knowledge, but sufficient for independent analysis of the problem and finding the unknown [6, 112].

Conclusions

Advantages of problem-based learning: students are involved in active intellectual and practical activities, while they experience strong positive emotions (interest, satisfaction, etc.). Students develop intellectual skills: perception of objects, observation, imagination, analysis, classification, proof, etc., as well as creative skills: the ability to see problems, pose questions, and look for solutions. Disadvantages of problem-based learning: problem-based learning brings unsatisfactory results and negative emotions if students are not prepared for it in terms of their development and level of knowledge. It requires high subject and methodological qualifications of the teacher, his ability to pose and solve problems and teach students this. Problem-based learning requires more time, so it is recommended to use it in accordance with didactic tasks and in combination with other types of learning (reporting, programmed).

I would like to note that both traditional and non-traditional technologies are acceptable and necessary in a modern university, while their synthesis and a logical transition from reproductive technology in the first year to creative technology in the final year is necessary.

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