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STRUCTURE OF PROBLEM EDUCATIONAL TECHNOLOGIES TO DEVELOP CRITICAL THINKING SKILLS OF STUDENTS OF HIGHER EDUCATION INSTITUTIONS

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ABSTRACT: This article examines the possibilities of problem-based educational technologies in developing critical thinking skills of students of higher education institutions. The content, types and structure of problematic educational technologies are also presented.

KEYWORDS: Critical thinking skills, problem-based learning technologies, problem situation, person-centered technologies, reasoning, evidence.

INTRODUCTION

Developing critical thinking, change management, and problem-solving skills in today's globalization and changing environment is one of the priority tasks. The post-industrial economy and the need to increase human capital determines the priority of acquiring skills such as effective team work, communicating with people, establishing effective communication with them, providing non-standard methods of achieving goals, and making independent decisions. The skill of critical thinking shows the wide range of possibilities of using problem-based educational technologies in the development of this skill from the point of view of the formation of an independent opinion as a result of a systematic process of observation, comparison, analysis and interpretation.

According to the definition of UNESCO, educational technology is a systematic way of planning, applying and evaluating the entire process of teaching, taking into account the interaction between people and technical resources to achieve a more effective form of education [6]. The main features of educational technology are: proportional organization of educational activities, the ability to obtain the desired result with the lowest costs, the methodological level of consideration of pedagogical problems, the introduction of systematic thinking that guides the educational process, actions, to the specified pedagogical goals an order that guarantees to achieve.

Many modern pedagogical concepts include a system focused on knowledge, skills and competencies, such concepts include: programmed teaching (P. Ya. Galperin, N. F. Talyzina, etc.); technology of enlargement of didactic units (P.M.Erdniev, B.P.Erdniev).

Problem-based educational technology is often related to the theory and practice of additional educational methods, and their similarity lies in the individuality of the approach and the study of knowledge that is interesting to the student. Therefore, training based on problem-based

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educational technology is aimed at forming students' analytical ability and the ability to use the method of independent decision-making and finding a solution in problem situations in everyday life. Rather than memorizing theoretical knowledge, this technology is aimed at developing students' ability to observe, compare and analyze.

In modern pedagogy, problem-based education is divided into several types, depending on which goal is defined by the teacher as the main one.

There are three main groups in this classification [4]:

- authoritarian technologies (unconditional obedience of the student to the teacher, complete control of the educational process, limitation of initiative and independence);
- didactocentric or technocratic technologies (given the priority of teaching, didactic tools are recognized as the main factor of personality formation);
- person-oriented technologies (in modern pedagogy, the student comes to the fore as a subject of activity, and the main pedagogical efforts are focused on his cognitive and personal development).

This classification of problematic educational technologies depends on the purpose. If the main goal is to organize and improve the educational process according to the interest of students, problem-based education can be classified as a didactocentric concept. If the methods of problem-based learning technology are used to develop creative thinking and intellectual abilities, problem-based learning can be classified as a person-oriented concept. Based on the theoretical approaches of L. V. Pilipets, we managed to clarify the structure of "Problematic educational technology" (see Figure 1).

One of the main concepts of problem-based learning technology is a problem situation. The problem situation determines the beginning of thinking in the process of forming and solving problems. Problem situations and, accordingly, the entire technology of problem-based learning is based on the principle of providing conflicting information to solve the problem.

The technological model of problem-based education is a model of the educational process aimed at improving the quality of knowledge, developing interest in science and critical thinking of students. The activity of teachers and students in the educational process organized on the basis of this technology has its own characteristics:

by the teacher - to identify and classify problematic situations and problems that can be presented to students, to show ways of forming arguments and checking them;

by the student - to the logic of evidence, the movement of the teacher's mind (prove the reliability or falsity of a problem, hypothesis, assumptions).

Our research and observations of existing scientific sources allowed us to determine the main characteristics of the methods that make up "Problematic educational technology" (Table 1).

Table 1

The main characteristics of the methods that make up the "problematic educational technology"

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Teaching method	Form of education
Monological presentation method	A story, a short lecture
Method of logical presentation	Heuristic conversation, problem situation
Dialogic presentation method	Conversation, story, problem situation, heuristic game, brainstorming (brainstorming)
Heuristic task method	Combining heuristic conversation with problem solving and problem solving
Research method	Student experiences, field trips, and evidence gathering, design, and modeling
Programmed way of working	Independent research activity

The technology is implemented in three stages (preparation, implementation, reflective-evaluation) and reflects the readiness of teachers and students to learn, the methods of presenting and identifying problems, solving them, and the necessary connections between the elements of the educational process.

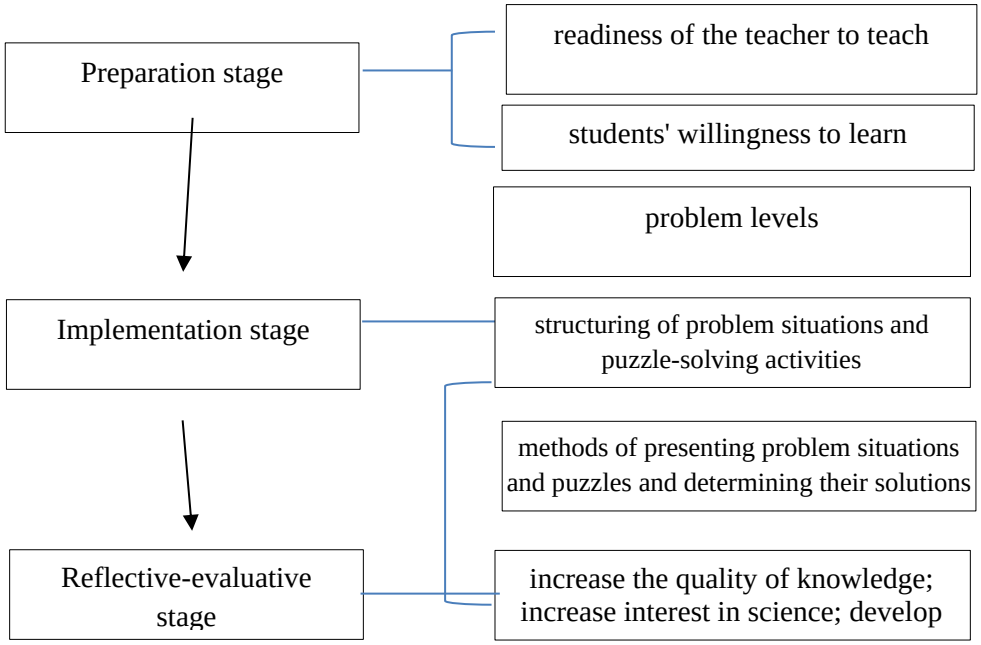

Figure 1. Mechanism of implementation of problem-based educational technology

The preparatory stage is characterized by the readiness of the teacher and students to acquire knowledge: filling the content of the educational material with cognitive knowledge and problem situations that correspond to the various readiness of students; selection of educational materials, methods and tools for organizing students' cognitive activity; increase students' self-awareness, evaluation, and development [5].

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The implementation stage is characterized by the creation of a problem situation that can be used by the teacher to explain new material, demonstrate experiences, and solve problems. At this stage, students can independently prove the solution of the problem and reasoning. For students, this stage is expressed in planning methods of checking completed tasks, finding ways to identify and eliminate errors, as well as analyzing the results of their activities.

At the reflection-evaluation stage, the quality of mastering the studied material is evaluated according to the established criteria of educational effectiveness: increasing the completeness of mastering the elements of knowledge, increasing the strength of knowledge, the level of forming the ability to solve problems and puzzles, increasing interest in science.

It can be seen from the above that problem-based educational technology provides a unique way of thinking, solidity of knowledge, a creative approach to the application of knowledge, and arouses interest in empirical research. It allows students to adapt to changing social and professional conditions.

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