The development of critical thinking as the main factor in the competitiveness of an ecologist

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Abstract. The purpose of the research: to consider the problem of the development of critical thinking among students in the educational process of a technical university.

Scientific hypothesis: The emergence of a new generation of high technologies has caused an urgent need to review the skills necessary for a future specialist for successful professional activity, placing emphasis on teamwork and creativity, learning through games and research that develop critical thinking, student initiative outside the educational program.

The concept of education development notes that quality education is one of the main factors of a person's success, and the teacher who provides it is both an object and a conductor of positive changes in a person's personality. As a result, the training programs for future specialists in technical areas must meet the standards of global trends, social needs and professional standards. Employers increasingly need new generation specialists who will be in demand in modern high-tech industries in the country. At the moment, the task is to prepare a highly qualified specialist who is able to professionally apply, in practice, modern forms, methods, and techniques based on the formed competencies and abilities, and also ready to solve actual problems in practice [1]. Achievement of the set goal should occur through methods and technologies that will allow solving practical problems to ensure the effectiveness of the educational process in higher education.

1 Introduction

The international expert community convincingly proves that the ability to think critically ensures the effectiveness of scientific, technological and social progress and is the key to democracy, and education should play a decisive role in its development [2]. Critical thinking, according to experts, determines the independent and responsible actions of a person, encourages the formulation of reasonable conclusions, assessments and decision-making, contributes to its constant self-improvement. It is no coincidence that the development of critical thinking is becoming one of the leading trends and cross-cutting tasks of the educational process today [3]. This problem has now taken a special place in the domestic scientific and pedagogical activity not only of philosophers, psychologists, and theoretical teachers, but also directly of those specialists who provide the educational process.

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2 Main part

- The ability to think, which involves the possession of certain techniques, together create a practice-proven methodology for processing information;
- Responsibility, which provides that a person, addressing others, is aware of the obligation to provide arguments and examples to his opponents;
- Formulation of independent judgments as a product of critical thinking means that it is aimed at creative speech activity, and not at the reproduction of thinking based on rigid algorithms and stereotypes.

It is impossible to single out a clear algorithm for the actions of a teacher in the formation of critical thinking among students [4]. But it is possible to single out certain conditions, the creation of which can induce and stimulate students to critical thinking.

The main ones.

- Time - students should have enough time to collect information on a specific problem, process it, and choose the best solution. The work on the formation of critical thinking can be carried out not only at the lesson, but also before it, and after it.
- Expectation of ideas - students should be aware that they are expected to express their thoughts and ideas in any form, their range can be unlimited, ideas can be different, non-trivial.
- Communication - learners should be able to exchange opinions. Because of this, they can see their significance and their contribution to solving the problem.
- The value of the thoughts of others - students should be able to listen and value the opinions of others [5]. At the same time, they must be aware that in order to find the optimal solution, it is very important to listen to all the arguments of interested people in order to finally formulate their own opinion on the problem, which can be corrected by "Collective Wisdom".
- Active position - the teacher must create an environment free from ridicule. Students should take an active position in learning, enjoy the knowledge gained. This stimulates them to strive to think outside the box, critically.
- Faith in the strength of students - students should know that they can express any opinions, think not a template [6].

In pedagogical theory, there is no list of steps that can automatically ensure the development of students' critical thinking. However, there are pedagogical conditions and learning approaches that can make this process effective. The methodology for the development of critical thinking is based on the creative cooperation of the teacher and the student, on the development of analytic and creative approaches to any material.

Training is carried out in three stages:

1) call;
2) understanding;
3) reflection.

Teachers and psychologists recommend introducing various learning strategies that are aimed at developing the thinking of students. According to authoritative scientists, students need to develop 6 types of mental activity in order to learn how to think critically:

1) mention - restoration in memory of facts, ideas and concepts;
2) reproduction - actualization of past experience;
3) justification - summing up a particular case under a general principle or concepts;
4) reorganization - the transformation of the initial conditions of the problem into a new problem situation, which allows you to find an original solution;
5) comparison - linking new knowledge with previously acquired or personal experience;
6) reflection - the study of the thought itself and the causes of its occurrence.

Exercises for the development of critical thinking

2.1 Argument structuring

The exercise trains the ability to check information, think logically and reasoned.

There are two types of content: informational and persuasive. The first is simply stating facts. For example, he says that water is wet and the sun is hot. The second kind is trying to convince you that wet water is good for your health or that you should buy sunscreen.

Persuasive content globally consists of three parts: thesis, premises and conclusions. A thesis is a kind of statement, for example: "Drink water - it is good for health." Premises are various arguments in favor of the thesis, and conclusions are a logical conclusion from the arguments supporting the original statement.

Your learner is to learn to identify these persuasive components in any content and check their validity.

2.2 "Basket of ideas"

The exercise will help to organize a discussion in the group.

First, the topic of the conversation is voiced. After that, each participant should write down on the sheet everything that he knows about the issue, as well as his associations and possible solutions to the problem.

All information is further used as a "data bank". It is important not to criticize other people's ideas and not to evaluate them, but to accept them as a possible way to solve a problem or get out of a problem situation.

The pedagogical innovation "critical thinking" came to us from the United States, where reflection has been actively introduced into the educational process since the second half of the last century. In addition to M. Lipman, the scientific works of such researchers of critical thinking as J.T. Stribe, John Dewey, D.H. Russell and B.O. Smith and others. Critical thinking is an extremely popular topic today. Various foundations initiate many educational programs, generously funding the rooting of the idea of developing critical thinking in curricula [7].

In the near future, it is assumed that the main capital will no longer be information itself, but its efficient producer [8]. The ability to process information will increase in price, and critical thinking skills will become the key to success in the information society [9]. The modern world, according to G. Paul, needs constant improvement of thinking skills. This is, so to speak, the first weighty reason why critical thinking should be taught.

The second reason is that critical thinking is a significant factor in the existence and formation of a democratic society, since in a democratic society the ability and readiness to evaluate the situation critically comes first.

Based on the foregoing, the authors decided to conduct a study whose purpose was to determine the level of development of critical thinking among bachelors of a technical profile of the 2nd course, numbering 54 people. The study was carried out at the Department of Oil and Gas Business at the Tyumen Industrial University, a branch of the city of Nizhnevartovsk, using the Critical Thinking Assessment Test (Watson-Glazer), which gave...
3 Conclusion

Analysis of the data for the second year revealed that a significant number of respondents were diagnosed with a lack of development of critical thinking. Critical thinking, of future specialists in technical areas, is certainly not a dogma, but an actively developing phenomenon. The professional training of future specialists is generated in the process of studying at the university. This phenomenon is subjected to constructive, qualitative and quantitative modifications, is reflected in the progressive dynamics of transformation from one stage to another, is determined by the internal balance between its components and provides an operationally effective solution of educational and professional tasks of various levels of content and complexity [11].

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