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DEVELOPMENT OF CRITICAL THINKING IN THE PROCESS OF TEACHING RUSSIAN TO STUDENTS OF TECHNICAL UNIVERSITIES

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Abstract

The article is devoted to the problem of using the technology of critical thinking in the process of teaching Russian to students of technical universities. A specialist who has critical thinking skills can work with the necessary information, set clear goals and develop optimal ways to achieve them. Such a specialist has independent thinking and is ready for professional self-realization.

Keywords: critical thinking, group form of training, teaching technology, learning process, methodological technique, stages of formation of critical thinking, active methods, interactive methods.



Introduction. The development of critical thinking is one of the priority areas of the education system. Personal adaptation in an ever-changing society is facilitated by the ability to think critically. Such a person has the ability to formulate questions and seek answers to them, identify verified data based on a reliable source, formulate his point of view and defend it with reason.

The development of critical thinking is a process of training and education, as a result of which such natural personality qualities as curiosity, receptivity, self-confidence, independence, courage in expressing ideas, sociability, and freedom of expression are actualized and developed.

In the course of solving group problems, all work is based on creative cooperation between teacher and student, on the development of students' analytical approach to any material, student-teacher, teacher-student, student-student interaction occurs through cognitive activity.

The development of students' critical thinking is the result of interaction between a teacher and a student, and the level of its formation depends, first of all, on the correct choice of forms of educational organization.

Any activity, including group activity, includes a goal, a means, a result and the process of activity itself.

The main link in creating creative initiative and high efficiency in the group form of organizing training is both the teacher coordinating the work of the group and the students - members of the group. The teacher demonstrates his ability to see technological, organizational, socio-economic, socio-psychological opportunities for obtaining maximum pedagogical results. Organizing students' work in groups allows teachers to get to know students better and support independent, group work of students, which implies:

- organizational activities;
- setting goals and objectives;
- formation of motivating motives;
- transfer of knowledge and experience;
- organizing interaction between students;
- control of the learning process.

The learning process is inextricably linked with such a concept as methods of organizing the educational process, i.e. form of interaction between students and teacher in the learning process [3]. In the context of the development of critical thinking, active and interactive teaching methods come to the fore, based on: the psychology of human relationships and interactions, communication and dialogue.

By active learning method we mean the interaction of

the teacher and students, in which the teacher and students interact with each other during the lesson and students here are not passive listeners, but active participants.

Active teaching methods are methods that allow you to intensify the learning process and encourage the student to creatively participate in it. Active learning methods allow students to develop their thinking and contribute to their involvement in solving problems that are as close as possible to professional ones; not only expand and deepen professional knowledge, but at the same time develop practical skills and abilities [8].

By interactive teaching method we mean methods of active learning, based primarily on such mechanisms of individual activity that are associated with the effects of group interaction, cooperation, joint activities to solve certain educational problems facing a group of students [6].

Students can be taught to think critically if instructional activities are directed toward this task. In order for students to be able to fully and consciously focus on improving their thinking abilities and broadening the scope of their acquired skills, instruction in critical thinking must include extensive number of examples from various spheres of life. Students must pose questions and search for answers through group learning and critical thinking.

Group members go through three main stages of critical thinking development: the challenge, comprehension and reflection stages [5]. A fourth stage is also necessary - generalization and evaluation. All stages are interdependent and interconnected.

The three-component structure, reflecting the three stages of the learning process: challenge - comprehension of content - reflection, is the basis of the technology for the development of critical thinking.

First stage – evocation.

It awakens cognitive interest, creates a desire to obtain new information, supplement it and deepen it. The teacher's task is to awaken students' interest in a new topic so that they can activate their existing knowledge, which will provide an additional incentive to learn something new. At the first stage, you can use the methodological techniques "mixed up logical chains", "clusters", "brainstorming", "true/false statements" and others. Information received at the call stage is listened to, recorded, and discussed.

The second stage - realization of meaning.

It is aimed at maintaining interest in the topic and obtaining new information. Systematization and comprehension of new information occurs. The student

learns to formulate questions as he relates old and new information. At this stage, students read or listen to the text using active reading methods: “clusters”, “know-learn-want to know”, “insert”, and others.

Third stage – reflection.

At this stage, the analysis and interpretation of the studied information occurs, when students, analyzing known and new information, derive their own knowledge on the topic. At the same time, new knowledge is consolidated, and primary ideas are actively reconstructed and supplemented with new information. At the third stage, you can use the methodological techniques “clusters”, “6 hats”, “insert”, “4 corners”, writing creative written works on the topic, discussing the topic in the form of a round table and others.

Let's consider the implementation of pedagogical technology for the development of critical thinking. In practical classes, you can use the “Basket of Ideas” methodological technique.

In its content, the “Basket of Ideas” is similar to such well-known techniques as “Brainstorm” and “Cluster”. In each case, different forms of work are assumed - both individual and group, and each of the techniques allows you to express any judgments - without evaluating or analyzing them.

Lexical topic: Creators of spiritual heritage. Working with text: Alisher Navoi.

Individual work. Each student writes down in a notebook everything he knows about the topic. This stage does not last long - 2-3 minutes.

Work in pairs or groups. Students exchange information, finding out where their opinions coincide and where they disagree. Time: 3 minutes.

Working with the class. At this stage, each group expresses its opinion on the topic, brings its knowledge or expresses ideas on the issue. Moreover, the answers should not be repeated. The teacher briefly writes down all statements on the board [7].

The “Basket of Ideas” may include: “Полное его имя Низамиддин Мир Алишер”, “Свои произведения создал под псевдонимом Навои”, “Алишер Навои - великий поэт и мыслитель, государственный деятель”, “Алишер Навои родился 9 февраля 1441 года в городе Герате”, “Навои создал произведение “Пятерица”, 1 рюем “Смятение праведных”, 2 рюем “Фархад и Ширин”, 3 рюем “Лайли и Мажнун”, 4 рюем “Семь планет”, 5 рюем “Стена Искандара”, “Алишер Навои через свою поэзию поднял узбекскую литературу на новый уровень”.

Methodical technique “Sinquain”. This technique develops students' figurative speech. The use of this method allows the teacher to get quick results in the first lesson. Lexical topic of the lesson: Земля – наш общий дом.

1. Describe the topic in one word, namely a noun. The following answers were given: Экология. Природа.

2. Choose an adjective or participle for these words.

Answers: Социальная экология, промышленная экология. Окружающая нас природа, живая природа.

3. To these phrases it is necessary to add verbs that would characterize actions related to the topic being studied.

Answers: Изучает, исследует, обеспечивает. Формирует, развивает, воспитывает.

4. Make sentences that consist of four words.

Answers: Изучает жизнь различных организмов. Естественная среда обитания человека.

5. By association, select a synonym that would repeat the content of the topic in the first answer.

Answers: Окружающая среда, экосистема. Мир, душа.

“True - False Statements” technique. Students should put a “+” sign where they think the statement is correct and a “-” sign where they think it is incorrect.

Topic: Выражение субъектно-предикативных отношений в простом предложении.

1. Подлежащее может быть выражено только существительным.

2. В предложении глаголы бывают только сказуемым.

3. Существительные могут быть мужского, женского и среднего рода.

4. Существительные изменяются по родам, числам и падежам.

5. In the sentence “Добраться до работы в этот день было непросто” the infinitive is the subject.

The formation and development of moral personality traits - cognitive activity and independence, perseverance, determination - is facilitated by training focused on the development of critical thinking. Educational, educational, labor, communicative and other types of activities, becoming the content of education, go beyond their limits to become moral activities [1].

The use of techniques and methods for solving problematic problems is an effective means of managing the process of developing critical thinking. Depending on the content of training, didactic means, individual characteristics of teaching, the level of training of students and the level of training of university teachers, various forms of organization of training are used. The level of development of critical thinking among students increases as students develop their ability to work in a group.

Thus, the use of technology for the development of critical thinking in Russian language classes for students of technical universities increases the intellectual potential of students, the ability to independently acquire knowledge, and helps develop thoughtful reading, monologue and dialogic speech.

References:

1. Belousova A.B. Intellectual potential of society and the development of thinking of pupils and students: collection of scientific papers / A.B. Belousova. – Kazan, 2001. – 497 s.
2. Bostrom R. Development of creative and critical thinking - M.: Publishing House “IOO”, 2000. - 273 p.
3. Vygotsky L.S. Anthology of humane pedagogy. – M.: Shalva Amonoshvili Publishing House, 2002. – 224 p.
4. Critical thinking, logic, argumentation / Ed. V.N. Bryushinkina, V.I. Markina. – Kaliningrad: Publishing house Kaliningr. state University, 2003. – 173 p.
5. Tyaglo, Alexander and Voropay, Tatiana. Critical Thinking: A Challenge to the XXI-st Century Education. - Kharkov: University of Internal Affairs, 1999. - 285 p.
6. Chepel T.L. Methods of teaching psychology: technology of intensive education: textbook. allowance. – Novosibirsk, 2006. – 425 p.
7. <http://rmebrk.kz/bilim/kaznpu/text/1004.pdf>
8. <https://lifemotivation.online/psychology/child-psy/priem-korzina-idej>