DEVELOPING STUDENTS' CRITICAL THINKING SKILLS BASED ON PROBLEM-BASED LEARNING TECHNOLOGY

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Annotation. This article highlights the pedagogical possibilities of developing critical thinking skills in students through the use of problem-based learning technology. It examines the essence of problem-based learning and its importance in fostering students' ability to think independently, analyze problems, compare evidence, evaluate different perspectives, and draw well-founded conclusions. The article also outlines the stages of creating problematic situations during lessons, identifying the problem, hypothesizing, looking for solutions based on evidence, and evaluating the results. It is argued that problem-based learning transforms the student from a passive recipient of ready-made knowledge into an active subject who searches for knowledge, analyzes it, and applies it in practice.

Keywords. Problem-based learning, critical thinking, problem situation, independent thinking, pedagogical technology, student activity, analysis, evidence, problem-solving, creative thinking, education effectiveness.

Аннотация. В этой статье освещаются педагогические возможности формирования у учащихся навыков критического мышления через использование проблемного обучения. Анализируются содержание и суть проблемного обучения, его значение для развития у учеников способности самостоятельно размышлять, анализировать проблему, сопоставлять доказательства, оценивать различные точки зрения и делать обоснованные выводы. Также рассматриваются этапы создания проблемных ситуаций на уроке, выявления проблемы, выдвижения гипотез, поиска решения на основе доказательств и оценки результатов. Обосновано, что проблемное обучение превращает ученика не в пассивного потребителя готовых

знаний, а в активного субъекта, который ищет знания, анализирует их и применяет на практике.

Ключевые слова. Проблемное обучение, критическое мышление, проблемная ситуация, самостоятельное мышление, педагогическая технология, активность учащихся, анализ, аргументация, решение проблемы, креативное мышление, эффективность обучения.

Annotatsiya. Mazkur maqolada muammoli ta’lim texnologiyasidan foydalanish orqali o‘quvchilarda tanqidiy fikrlash ko‘nikmalarini shakllantirishning pedagogik imkoniyatlari yoritilgan. Muammoli ta’limning mazmun-mohiyati, uning o‘quvchilarning mustaqil fikrlashi, muammoni tahlil qilishi, dalillarni solishtirishi, turli nuqtayi nazarlarni baholashi va asoslangan xulosa chiqarish qobiliyatlarini rivojlantirishdagi ahamiyati tahlil qilingan. Shuningdek, dars jarayonida muammoli vaziyatlarni yaratish, muammoni aniqlash, faraz ilgari surish, dalillar asosida yechim izlash va natijalarni baholash bosqichlari ochib berilgan. Muammoli ta’lim o‘quvchini tayyor bilimni qabul qiluvchi emas, balki bilimni izlab topuvchi, tahlil qiluvchi va amaliyotda qo‘llovchi faol subyektga aylantirishi asoslab berilgan.

Kalit so‘zlar. Muammoli ta’lim, tanqidiy fikrlash, muammoli vaziyat, mustaqil fikrlash, pedagogik texnologiya, o‘quvchi faolligi, tahlil, dalillash, muammoni hal qilish, ijodiy fikrlash, ta’lim samaradorligi.

In today's education process, it's important not just to give students ready-made knowledge, but also to develop their skills in independent thinking, analyzing information, approaching problems from different perspectives, and making informed decisions. In modern society, a person's success largely depends on how they analyze existing information, distinguish between reliable and unreliable data, and find acceptable solutions in complex situations. From this perspective, using problem-based learning in education is particularly important. Problem-based learning involves presenting students with a specific problem or question and guiding them to understand the problem and look for solutions on their own. In this approach, the teacher doesn't just give the answer but acts as a guide and organizer of the students' exploration and research activities. One of the main advantages

of problem-based learning is that it encourages students to think actively. When a student encounters a problem situation, they recall their existing knowledge, compare it with the new situation, identify causes and effects, make hypotheses, and try to justify their opinions with evidence. As a result, their critical thinking skills gradually develop. Problem-based learning is an educational approach where students acquire knowledge independently through solving problem situations rather than just receiving ready-made information. In this process, a situation is created for the student where it cannot be solved immediately with existing knowledge, but a solution can be found through exploration. This very contradiction encourages the student to think actively.

The problem-based learning process usually takes place in several interconnected stages. In the first stage, the teacher directs the students' attention to a specific problemA problem can be presented through a question, a practical situation, an experiment, a conflicting opinion, or a real-life example. In the second stage, students identify the essence of the problem and mobilize their existing knowledge to solve it. In the third stage, various hypotheses are proposed. In the next stage, the hypotheses are tested based on evidence, and the most suitable solution is determined. Finally, students form their conclusions and evaluate the results. Critical thinking is the ability of a student to not just accept information, but to analyze it, evaluate evidence, identify cause-and-effect relationships, compare different opinions, and come to a reasoned conclusion. These skills naturally develop in a problem-based learning process. That's because to solve a problem, a student thinks about questions like 'Why?', 'How?', 'What's the reason for this?', 'Which evidence supports this idea?', or 'What other solutions might there be?'. In problem-based learning, the teacher's skill in asking questions plays an important role. While simple reproductive questions require the student to just repeat existing knowledge, problem-based questions encourage analytical and independent thinking. For example, in history, instead of asking 'When did this event happen?', asking 'If this historical event had developed differently, what outcomes might have occurred?' prompts students to analyze cause and effect. In biology, along with a question like 'What is photosynthesis?', you could use a problem-based question such as 'If the process of photosynthesis stopped in a plant,

what changes would occur in the ecosystem?' Using real-life examples when creating problem-based situations is also considered effective. For example, in geography class, issues like the decrease of water resources, in biology, ecological problems, in physics, saving energy, in math, daily life calculations, and in language and literature lessons, assessing the actions of characters, all help students develop thinking related to real life. Discussions and debates are also important tools in developing critical thinking. When students are given a task to defend different opinions on a problematic situation, they learn to support their point of view with evidence. At the same time, they develop the skill of listening to others' opinions, identifying their strengths and weaknesses, and revising their own views if necessary. Organizing problem-based learning in small groups also gives high results. Group members analyze the problem together and propose different solutions. In this way, students gain experience in expressing their own opinions, respecting others' opinions, comparing evidence, and reaching a common decision. This process not only helps develop critical thinking but also supports communication and collaborative skills. In problem-based learning, the teacher's role is not to provide the ready-made solution to the problem, but to guide the student in the right direction. The teacher asks guiding questions when necessary, provides additional information, summarizes students' ideas, and clarifies conclusions. That's why problem-based learning requires the teacher to have a high level of methodological preparation, flexibility, and creativity.

When assessing students' critical thinking skills, attention should be paid not only to the final answer but also to the process of solving the problem. You can use criteria like correctly identifying the problem, searching for and selecting information, analyzing evidence, making assumptions, considering alternative solutions, supporting your opinion, and drawing a final conclusion. Also, the importance of critical thinking is increasing in today’s information environment. Students get a large amount of information from the internet and social media. For this reason, they need to have skills to determine the source of information, distinguish between fact and opinion, check the reliability of evidence, and avoid rushing to conclusions. Problem-based learning creates a suitable educational environment to develop exactly these competencies. Overall, problem-based learning turns

the student into an active participant in the lesson. The student understands the problem, asks questions, makes assumptions, analyzes information, and tries to justify a solution. This leads to a solid understanding of knowledge and helps develop the ability to apply it in new situations. Problem-based learning is one of the effective pedagogical tools for developing students' critical thinking skills. This approach helps students develop important skills like identifying and analyzing problems, evaluating evidence, comparing different points of view, making independent decisions, and justifying their opinions. To use problem-based learning effectively, it's necessary to create problem situations that match the lesson content, use open and logical questions, organize group discussions, and give students the opportunity to research independently. In this approach, it's best for the teacher to take on the role of a guide and organizer, while the student actively participates as an explorer. In this way, problem-based learning not only deepens students' knowledge in a subject but also prepares them for complex real-life situations. Using this method in a systematic and purposeful way is key to developing a person who can think critically, make evidence-based decisions, and defend their own opinions, which is one of the important factors in improving the quality of education.

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