

**Обучение критическому мышлению: развитие навыков
мышления высшего порядка**

**Teaching critical thinking: the promotion of higher-order thinking
skills**

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Аннотация Наш постоянно меняющийся и сложный мир требует от студентов, будущих граждан страны, выйти за пределы простого получения знаний: они должны развивать навыки мышления высшего порядка, такие как системное критическое мышление, навыки принятия решений и решения проблем. Развитие навыков мышления высшего порядка является необходимым для того, чтобы облегчить переход знаний, умений и навыков студентов в ответственные действия, независимо от их конкретной будущей роли в обществе. Решение этой задачи требует, среди прочего, развития критического мышления студентов, необходимого для анализа незнакомых ситуаций, так чтобы решение проблем и принятие возможных решений базировалось на рациональном мышлении. Критическое мышление важно для человека, чтобы удовлетворить его повседневные личные, социальные и профессиональные запросы. Критическое мышление требует, чтобы студенты смотрели на вещи с разных точек зрения и оценивали их в процессе скрупулезной интеллектуальной деятельности.

В основе реформ образования во всем мире лежат конструктивистские взгляды на преподавание и обучения. Одним из основных компонентов реформ в сфере образования в настоящее время является переход от традиционного обучения алгоритмическим когнитивным умениям и навыкам к мышлению высшего порядка. Конструктивистская теория признает, что студенты должны находиться в такой образовательной среде, которая позволит им получить свои собственные знания и развить навыки мышления.

Хотя эти руководящие идеи реформы образования и соответствующие стратегии обучения включены в программы курсов для преподавателей и программы повышения квалификации, значительная их часть все еще не реализуется в учебном процессе. Разработка и внедрение стратегий обучения, которые развивают мышление высшего порядка у студентов, являются сложной задачей; они бросают вызов даже самым опытным преподавателям.

Ключевые слова критическое мышление; развитие критического мышления; мышление высшего порядка; конструктивистская теория; рефлексия; студентоцентрированное образование.

Summary Our ever-changing and challenging world requires students, future citizens, to go beyond the building of their knowledge capacity: they need to develop higher-order thinking skills, such as critical system thinking, decision making and problem solving. The development of higher-order thinking skills (or higher order cognitive skills) is prominent in order to facilitate the transition of students' knowledge and skills into responsible action, regardless of their particular future role in society. Meeting this challenge requires, among others, the development of students' capacities of critical thinking, which is necessary for the

analysis of unfamiliar situations, so that their question-asking, problem-solving and decision-making capabilities will be based on a framework of rational thinking. Critical thinking is important for a person to meet the everyday personal, social and professional demands of the society. Critical thinking requires students to view things from many different angles and evaluate them through a process of rigorous intellectual activities.

Education reforms worldwide are derived from constructivist views of teaching and learning. A major component of the current reforms in education is the shift from the dominant traditional teaching for algorithmic, lower-order cognitive skills to higher-order thinking/cognitive skills. The constructivist theory recognizes that students need to be exposed to learning experiences that enable them to construct their own knowledge and promote their thinking skills.

Although the guiding ideas of education reforms and corresponding supporting teaching strategies have been and are incorporated into teachers' courses and professional development programmes, a substantial portion of these strategies are not implemented in the teachers' classrooms. Indeed the design and implementation of teaching strategies that enhance higher-order thinking among students are not a simple endeavor; they challenge even the most expert teachers.

Key words Critical thinking; critical thinking development; higher-order thinking skills; the constructivist theory; reflection; students-focused education.

Critical thinking is the ability to think clearly and rationally. It includes the ability to engage in reflective and independent thinking. Someone with critical thinking skills is able to do the following:

- understand the logical connections between ideas;
- identify, construct and evaluate arguments;
- detect inconsistencies and common mistakes in reasoning;
- solve problems systematically;
- identify the relevance and importance of ideas;
- reflect on the justification of one's own beliefs and values.

Critical thinking is not a matter of accumulating information. A person with a good memory and who knows a lot of facts is not necessarily good at critical thinking. A critical thinker is able to deduce consequences from what he knows, and he knows how to make use of information to solve problems, and to seek relevant sources of information to inform himself.

A good critical thinker:

- raises vital questions and problems, formulating them clearly and precisely;

- gathers and assesses relevant information, using abstract ideas to interpret it effectively comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
- thinks open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences;
- communicates effectively with others in figuring out solutions to complex problems.

Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes assent to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem solving abilities and a commitment to overcome our native egocentrism and sociocentrism [5].

Critical thinking should not be confused with being argumentative or being critical of other people. Although critical thinking skills can be used in exposing fallacies and bad reasoning, critical thinking can also play an important role in cooperative reasoning and constructive tasks. Critical thinking can help us acquire knowledge, improve our theories, and strengthen arguments. We can use critical thinking to enhance work processes and improve social institutions.

Some people believe that critical thinking hinders creativity because it requires following the rules of logic and rationality, but creativity might require breaking rules. This is a misconception. Critical thinking is quite compatible with thinking "out-of-the-box", challenging consensus and pursuing less popular approaches. If anything, critical thinking is an essential part of creativity because we need critical thinking to evaluate and improve our creative ideas.

Just as there are similarities among the definitions of critical thinking across subject areas and levels, there are several generally recognized "hallmarks" of teaching for critical thinking. These include:

- Promoting interaction among students as they learn.

Learning in a group setting often helps each member achieve more.

- Asking open-ended questions that do not assume the "one right answer".

Critical thinking is often exemplified best when the problems are inherently ill-defined and do not have a "right" answer. Open-ended questions also encourage students to think and respond creatively, without fear of giving the "wrong" answer.

- Allowing sufficient time for students to reflect on the questions asked or problems posed.

Critical thinking seldom involves snap judgments; therefore, posing questions and allowing adequate time before soliciting responses helps students understand that they are expected to deliberate and to ponder, and that the immediate response is not always the best response.

- Teaching for transfer.

The skills for critical thinking should "travel well." They generally will do so only if teachers provide opportunities for students to see how a newly acquired skill can apply to other situations and to the student's own experience.

Critical thinking skills are skills that students need to learn to be able to solve problems. This includes analyzing and evaluating information that is provided, whether that information is through observation, experience or communication. The core of critical thinking is being responsive to information and not just accepting it. Questioning is the most important part of critical thinking. It is a part of scientific, mathematical, historical, economic and philosophical thinking, all of which are necessary for the future development of our society. Here are a few ways to teach critical thinking:

Classroom Assessment Techniques (CATS): Angelo [1] stresses the use of ongoing classroom assessment as a way to monitor and facilitate students' critical thinking. An example of a CAT is to ask students to write a "Minute Paper" responding to questions such as "What was the most important thing you learned in today's class? What question related to this session remains upper-

most in your mind?" The teacher selects some of the papers and prepares responses for the next class meeting.

Cooperative Learning Strategies: Cooper argues that putting students in group learning situations is the best way to foster critical thinking. "In properly structured cooperative learning environments, students perform more of the active, critical thinking with continuous support and feedback from other students and the teacher"[2, p.8].

Case Study / Discussion Method: McDade [3] describes this method as the teacher presenting a case (or story) to the class without a conclusion. Using prepared questions, the teacher then leads students through a discussion, allowing students to construct a conclusion for the case.

Using Questions: King [4] identifies ways of using questions in the classroom:

Reciprocal Peer Questioning: Following lecture, the teacher displays a list of question stems (such as, "What are the strengths and weaknesses of..."). Students must write questions about the lecture material. In small groups, the students ask each other the questions. Then, the whole class discusses some of the questions from each small group.

Reader's Questions: Require students to write questions on assigned reading and turn them in at the beginning of class. Select a few of the questions as the impetus for class discussion.

Conference Style Learning: The teacher does not "teach" the class in the sense of lecturing. The teacher is a facilitator of a conference. Students must thoroughly read all required material before class. Assigned readings should be in the zone of proximal development. That is, readings should be able to be understood by students, but also challenging. The class consists of the students asking questions of each other and discussing these questions. The teacher does not remain passive, but rather, helps "direct and mold discussions by posing strategic questions and helping students build on each others' ideas" [8, p.18].

Use Writing Assignments: Wade sees the use of writing as fundamental to developing critical thinking skills. "With written assignments, an instructor can encourage the development of dialectic reasoning by requiring students to argue both [or more] sides of an issue" [9, p.24].

Dialogues: Robertson and Rane-Szostak [6] identify two methods of stimulating useful discussions in the classroom:

Written dialogues: Give students written dialogues to analyze. In small groups, students must identify the different viewpoints of each participant in the dialogue, must look for biases, presence or exclusion of important evidence, alternative interpretations, misstatement of facts, and errors in reasoning. Each group must decide which view is the most reasonable. After coming to a conclusion, each group acts out their dialogue and explains their analysis of it.

Spontaneous Group Dialogue: One group of students is assigned roles to play in a discussion (such as leader, information giver, opinion seeker, and disagreeer). Four observer groups are formed with the functions of determining what roles are being played by whom, identifying biases and errors in thinking, evaluating reasoning skills, and examining ethical implications of the content.

Ambiguity: Strohm and Baukus [7] advocate producing much ambiguity in the classroom. Don't give students clear cut material. Give them conflicting information that they must think their way through.

Thus, critical thinking skills figure prominently among the goals for education, whether one asks developers of curricula, educational researchers, parents, or employers. Although there are some quite diverse definitions of critical thinking, nearly all emphasize the ability and tendency to gather, evaluate, and use information effectively.

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