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DEVELOPING CRITICAL THINKING SKILLS IN STUDENTS: APPROACHES, CHALLENGES, AND PEDAGOGICAL IMPLICATIONS

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ARTICLE INFORMATION	ABSTRACT:
ARTICLE HISTORY: *Received:20.01.2026* *Revised: 21.01.2026* *Accepted:22.01.2026* **KEYWORDS:** *logical thinking, analytical thinking, digitalization, challenge, theory, discussion, approach.*	*Critical thinking has become an essential competence in modern education due to the increasing complexity of information, the need for problem-solving, and the demands of a knowledge-based society. This article examines the concept of critical thinking, major theoretical foundations, strategies for developing critical thinking in students, and the challenges educators face when integrating critical-thinking-oriented instruction. The paper also provides practical recommendations for teachers and concludes with implications for future research. The discussion is supported by relevant academic references.*

Critical thinking has become an essential competence in modern education due to the increasing complexity of information, the need for problem-solving, and the demands of a knowledge-based society. This article examines the concept of critical thinking, major theoretical foundations, strategies for developing critical thinking in students, and the challenges educators face when integrating critical-thinking-oriented instruction. The paper also provides practical recommendations for teachers and concludes with implications for future research. The discussion is supported by relevant academic references.

In the 21st century, education is expected not only to transmit knowledge but also to prepare learners to analyze information, make sound judgments, and solve real-world problems. Critical thinking (CT) is widely recognized as a fundamental skill for academic success, employability, and lifelong learning (Facione, 1990). As globalization and digitalization accelerate the flow of information, students must be able to evaluate sources, identify bias, detect fallacies, and reason logically.

Many educational systems, especially those influenced by competency-based approaches, now include critical thinking as a core objective. However, developing CT is a complex process requiring pedagogical expertise, carefully designed learning activities, and

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supportive classroom environments. This article synthesizes theoretical and practical perspectives on developing critical thinking skills in students, presenting research-based strategies and highlighting challenges and solutions for teachers.

Conceptual Foundations of Critical Thinking

Critical thinking has been defined in various ways across disciplines. One of the most influential definitions is provided by Peter A. Facione (1990), who describes CT as "purposeful, self-regulatory judgment" that includes interpretation, analysis, evaluation, inference, explanation, and metacognition. Ennis (2011) explains CT as "reasonable reflective thinking aimed at deciding what to believe or do." Paul and Elder (2014) emphasize intellectual standards such as clarity, accuracy, precision, relevance, depth, and logic.

Despite differences, most definitions share common elements:

Analytical thinking (breaking information into parts)

Logical reasoning (drawing valid conclusions)

Evaluation of information (assessing reliability and credibility)

Reflection (examining one's own beliefs and biases)

making (selecting the best solution or belief)

Thus, CT is not only a cognitive ability but also a disposition involving curiosity, open-mindedness, and intellectual integrity.

Theoretical Frameworks Supporting Critical Thinking

Bloom's Taxonomy

Bloom's Taxonomy (revised by Anderson & Krathwohl, 2001) identifies levels of cognitive complexity. Higher-order thinking skills—analyzing, evaluating, and creating—are directly connected to CT development. Lessons designed at these levels encourage students to question, argue, compare, and construct new ideas.

Constructivist Theory

Constructivist approaches (Vygotsky, 1978; Bruner, 1996) view learning as an active process where students build knowledge through interaction and inquiry. Constructivist classrooms promote critical thinking by encouraging problem-solving, collaboration, and discovery.

Socratic Dialogue

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Socratic questioning is one of the oldest and most powerful tools for stimulating CT. By asking probing, open-ended questions, teachers guide students to evaluate assumptions, analyze reasoning, and defend their viewpoints.

Metacognitive Theory

Flavell's (1979) concept of metacognition—thinking about one's own thinking—plays a central role in CT. Students who reflect on how they learn and reason become more capable of independent problem-solving.

4. Strategies for Developing Critical Thinking in Students

Numerous teaching strategies have proven effective in fostering CT. The following approaches are supported by research in pedagogy, psychology, and educational methodology.

Questioning Techniques

Effective teachers use open-ended, analytical questions that require deeper thinking. Examples include:

"What evidence supports this idea?"

"How would you explain this to someone who disagrees?"

"What are alternative interpretations?"

According to Chin and Osborne (2008), inquiry-based questioning leads to improved reasoning, argumentation, and conceptual understanding.

Problem-Based Learning (PBL)

PBL involves presenting students with complex, real-life problems that lack straightforward answers. Research shows that PBL increases analytical skills, creativity, and decision-making abilities (Hmelo-Silver, 2004). It encourages students to:

investigate

hypothesize

analyze data

propose solutions

evaluate outcomes

These processes align directly with CT components.

Collaborative Learning

Group discussions, debates, and peer evaluation allow students to encounter different perspectives and test the strength of their reasoning. Johnson, Johnson, and Smith (2007)

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found that cooperative learning enhances critical thinking more effectively than individual learning.

Case Studies and Real-World Scenarios

Using case studies—especially in medical, business, and social sciences education—helps students analyze authentic problems and apply theoretical knowledge. Case-based teaching promotes evaluation, inference, and judgment (Herreid, 2011).

Argumentation and Debate

Argumentation is a cornerstone of CT. By constructing and defending arguments, students learn to:

recognize fallacies

evaluate evidence

build logical reasoning

consider opposing viewpoints

Debate formats, such as Oxford debate or role-play debates, encourage both critical and communicative competence.

Integrating Technology

Digital tools—such as online discussion forums, simulations, AI-supported platforms, and interactive problem-solving applications—can enhance CT when used purposefully. According to Lai (2011), technology encourages exploration, evaluation of sources, and independent inquiry.

Reflective Writing

Reflective journals, essays, and portfolios help students articulate their learning processes and examine their beliefs. Reflection is linked to deeper conceptual understanding and metacognitive development.

Challenges in Developing Critical Thinking

Despite its importance, promoting CT in the classroom can be challenging.

Traditional Teaching Methods

Many teachers still rely on lecture-based instruction, which limits student engagement. Traditional methods often focus on memorization rather than analysis and problem-solving.

Lack of Teacher Training

Research indicates that teachers may not have sufficient preparation in CT pedagogy. Without training in questioning techniques, assessment, or facilitation of discussions, it is difficult to effectively build CT skills.

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Assessment Difficulties

Critical thinking is complex and not easily measured. Standardized tests do not capture skills such as evaluation, creativity, or argumentation. Teachers may struggle to design rubrics that assess CT objectively.

Cultural and Educational Contexts

In some cultures, questioning teachers or expressing disagreement is discouraged. Students may be reluctant to debate or challenge ideas, which limits CT development.

Limited Time and Large Classes

High teacher workload, short lesson durations, and large class sizes can hinder student-centered approaches like discussion, PBL, or reflective activities.

Recommendations for Teachers

To effectively foster critical thinking in students, educators should consider the following practical recommendations:

1. Use purposeful questioning that challenges students to explain, justify, and reflect.

2. Encourage active learning through group discussions, debates, and cooperative projects.

3. Integrate real-world problems to help students apply CT in authentic contexts.

4. Teach argumentation skills explicitly, including how to construct claims, evidence, and reasoning.

5. Provide feedback focused on reasoning, not only on correct answers.

6. Promote metacognitive activities, such as self-assessment and reflection.

7. Adopt formative assessments like portfolios, peer reviews, and reflective journals.

8. Attend professional development programs to enhance CT pedagogy skills.

In conclusion, developing critical thinking skills in students is essential for preparing them for academic, professional, and personal challenges in a rapidly changing world. Research shows that CT can be taught and improved when educators implement effective strategies such as inquiry-based questioning, problem-based learning, collaborative activities, and reflective practice. However, successful implementation requires teacher training, supportive educational policies, and assessment methods that value higher-order thinking. Future research should explore innovative digital tools, culturally responsive CT instruction, and methods for integrating CT across different subjects.

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