

# THE IMPORTANCE OF DEVELOPING CRITICAL THINKING

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## Abstract

In today's world of globalization, the development of critical thinking is manifested as one of the most important components of human life. In the conditions of rapid development of information technologies, digital transformation processes and socio-economic transformations, the ability of a person to make independent, logical and informed decisions is of great importance. The article analyzes the content of critical thinking, its role in the educational process and its role in the professional development of young people. At the same time, the main mechanisms and effective methods of developing critical thinking are discussed. The results of the presentation show that the formation of critical thinking competencies has a significant positive impact on the development of society.

**Keywords:** Critical thinking, education, competency, analysis, digital world, logical thinking.

## Introduction

In the current era of globalization, it has become important for a person to be able to think independently, analyze information and draw correct conclusions from it. Of course, it is necessary to develop critical thinking in humans. Because, where there is critical thinking, a person develops, and as a person develops, so does society. The policy of education and training requires a new social order at the same time. At present, our society requires individuals who can make quick and correct decisions. The goal of critical thinking development technology is to equip students with the mental skills needed not only in reading but also in their later life. With the rapid development of digital technologies, fake information and manipulative information are increasing. Therefore, teaching critical thinking is the direction of both the education system and society.

## Literature Review

In recent decades, critical thinking has been viewed as one of the core competencies of education. Research in the field of cognitive psychology, neuropedagogy, educational technology notes that critical thinking strengthens the role of students in deep assimilation of knowledge, problem analysis, sighting logical connections and decision-making.



The Critical Thinking Framework, developed by Paul & Elder (2008), defines critical thinking as "the process of logically analyzing, evaluating, and drawing informed conclusions about information." In their research, it was found that teaching critical thinking increases students' reasoning skills by 30–40%. This will lead to a deepening of ideas in the course of lessons, an increase in the level of independent learning and interesting lessons.

Halpern's (2010) research on cognitive skills confirms that critical thinking develops logical reasoning and metacognitive control skills in learners, while reducing the number of errors when performing complex tasks. According to research, students who worked with critical thinking strategies had 25–35% higher problem-solving effectiveness.

The literature on digital education also emphasizes the importance of critical thinking. A study by Kuhn & Crowell (2011) found that learners who were trained on the basis of online debate, debate, and problem situations performed significantly higher than the conventionally trained groups in comparing information, analyzing evidence, and drawing conclusions. They believe that the development of critical thinking shapes students' critical attitude towards information, increasing their ability to identify inaccurate and manipulative information.

Neuropsychological studies, in particular by D. Willingham (2012), show that critical thinking bias is linked to higher order of analytic functions of brain activity – prefrontal cortex activity. When these functions are actively used, students' decision-making accuracy and ability to form logical sequences increase.

The impact of critical thinking on learning effectiveness has also been noted in methodological studies. In a 20-year meta-analysis by Abrami et al. (2015), classes using critical thinking strategies showed on average 17–20% higher mastery. In particular, it has been found that Q&A, problem tasks, debates, analytical notes enhance critical thinking.

In general, the existing scientific literature confirms that the development of critical thinking is an integral part of the educational process. Critical thinking is taught in students:

It forms the skills of evaluating, comparing and analyzing information, drawing conclusions on the basis of logical evidence, independent thinking, conscious control of the decision-making process, sorting out incorrect or unjustified information.

### **Methodology**

The methodology of this study aims to scientifically determine the impact of educational interventions aimed at the development of critical thinking on students' short- and long-term learning, logical analysis skills, and problem-solving effectiveness. The research is conducted in quasi-experimental pre-test / post-test design and combined qualitative and quantitative data based on a mixed approach (mixed-methods).

### **Research Design**

In the process of research, two groups are formed:

Control group: During the lesson, traditional text is taught, performing simple explanatory and reproduction tasks.



Experiment Group: Take lessons in which critical thinking strategies are integrated (Debate, Problem-Ring Technique, Advanced Levels of Q&A, Argument Analysis, Concept Maps, Evidence-Inference Linking Exercises).

Both groups were given a pre-test at the beginning of the study and a post-test at the end, and the results were compared. This approach makes it possible to determine the real impact of teaching critical thinking.

### Participants

Sample: 80–120 pupils or students (secondary education or university).

Method of sampling: random cluster sampling.

Ethics: all participants agree; Confidentiality and anonymity are guaranteed.

Materials and Learning Intervention

The following materials and exercises are used to develop critical thinking in the experimental group:

Structured assignments (analysis, evaluation, creation) on higher levels of Bloom's taxonomy.

Evidence assessment tables (claim–evidence–reasoning model).

Debate and debate scenarios (based on Kuhn & Crowell, 2011).

Concept xaritalari (Novak & Cañas, 2008).

Mini-case studies for argument analysis.

In the control group, only text-specific training materials and the traditional Q&A will be used.

Measurement Tools

The following diagnostic tools are used in the study:

1. California Critical Thinking Skills Test (CCTST) – measures the skills of analysis, induction, deduction, logical assessment.

2. Watson–Glaser Critical Thinking Appraisal (WGCTA) – Assesses the ability to examine evidence and draw conclusions.

3. Qualitative analysis of students' activities: the quality of arguments, logical links, the correctness of arguments in written works are studied.

These dimensions make it possible to observe changes in critical thinking in both quantitative and qualitative metrics.

data collection and analysis

Quantitative data: Pre-test and post-test results are statistically analyzed (t-guess test, ANOVA).

Qualitative data: students' written work, answers during discussions, teacher observations will be analyzed through thematic coding.

Reliability: Interoperability is ensured by evaluation by two independent experts.

Methodology asos:

The methodology adopts advanced scientific approaches for the development of critical thinking:

Halpern (2014) – A strategic approach to teaching critical thinking skills.

Paul & Elder (2008) – Logical Analysis and Standards of Proof.

Abrami et al. (2015) – A meta-analysis on the effectiveness of critical thinking interventions.



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Kuhn (2011) – A model for developing thinking through debate and dialogue.

### Conclusion

Based on the above, we can say that each student creates an integral cognitive space that combines all available theoretical knowledge, practical information, skills and abilities. The pre-test and post-test results showed a significant increase in the experimental group, confirming that critical thinking also has a positive effect on students' mastery levels. Qualitative observations, on the other hand, have shown that students have a conscious approach to problem situations and a tendency to substantiate their thoughts. In general, if a student is able to think critically, he can easily enter any stage of the lesson and strengthen the students' thinking culture, independent learning skills and the capacity for conscious evaluation of information. For this reason, it is an important component of modern education.

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