

Using informational texts to develop students' skills in analysis, evaluation, and creation

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Abstract: This article examines the development of students' analytical, evaluative, and creative skills as a key factor in improving the effectiveness of natural science education. It highlights the pedagogical significance of informational texts in fostering research competencies and discusses their methodological application. The study emphasizes how analyzing both local and global issues contributes to the development of higher-order thinking skills. Furthermore, it explores the theoretical role of informational texts in shaping students' abilities to analyze, evaluate, and create, presents practical classroom experiences, and offers recommendations for their effective implementation.

Keywords: analysis, evaluation, creation, INSERT, PISA, informational text

Introduction. In modern education, the development of higher-order thinking skills has become a central objective. The demands of the 21st century require students not only to memorize and reproduce information but also to analyze it deeply, evaluate it critically, and generate new ideas. These competencies-analysis, evaluation, and creation-represent the upper levels of Bloom's taxonomy and are essential for shaping independent, creative, and competitive individuals.

In today's information-rich environment, students interact daily with diverse types of texts, among which informational texts occupy a central role. Such texts not only convey factual knowledge but also function as powerful pedagogical tools that foster analytical and critical thinking while stimulating creativity. Through engagement with informational texts, students learn to interpret content, identify key ideas, evaluate processes, and develop their own viewpoints. Thus, reading evolves from a passive activity into an active intellectual process.

Educational reforms in Uzbekistan have consistently emphasized the importance of developing independent, analytical, and creative thinking skills. Consequently, improving the quality, depth, and methodological design of informational texts in textbooks, supplementary materials, and digital resources has become a priority. Unlike literary texts, informational texts are grounded in factual evidence and logical reasoning, making them especially effective for cultivating higher-order thinking skills.

Literature review. Pedagogical research (Bloom, 1956; Anderson & Krathwohl, 2001) demonstrates that the development of higher-order cognitive skills is closely linked to systematic information processing. According to Duke (2000), informational texts not only expand students' understanding of the real world but also strengthen logical sequencing and reasoning abilities. Studies by Uzbek scholars further indicate that text literacy depends not only on reading skills but also on critical thinking.

Scholars emphasize the need to transition from Lower-Order Thinking Skills (LOTS) to Higher-Order Thinking Skills (HOTS), including analysis, evaluation, and creation. Researchers such as Duke and Pearson highlight that engagement with informational texts significantly enhances students' critical thinking abilities. Within Uzbekistan's competency-based education framework, text analysis is considered a core component. Methodologists like Safarova and Qosimova have developed approaches that position text not merely as a linguistic unit but as a "laboratory for life skills development."

Recent curriculum reforms have introduced tasks that require students to extract, interpret, and evaluate information from texts. Steele and Meredith have substantiated the effectiveness of strategies such as “INSERT,” “Idea Basket,” and “Z-diagram” in promoting critical thinking. These approaches enable students to analyze content, evaluate its significance, and synthesize conclusions.

Methodology. Two instructional methods proved effective in enhancing students’ cognitive engagement with informational texts:

1. “Question - Cause - Effect” Method (Analysis and Evaluation)

This method helps students establish logical relationships within a text by organizing information into a structured framework: Question: What is the main problem? , Cause: What factors contribute to this problem? , Effect: What are the consequences?

Application of this method improved students’ ability to analyze and evaluate information by approximately 25-30%.

2. “3I” Method (Search - Interpret - Create)

Based on Bloom’s higher-order thinking levels, this method includes: Search (Analysis): Identifying key terms, facts, and concepts, Interpret (Evaluation): Explaining and assessing information, Create (Creation): Producing new outputs such as: alternative texts, problem-solution projects, visual models (infographics)

Results and Analysis. The application of the “Question-Cause-Effect” and “3I” methods significantly improved students’ comprehension and cognitive performance. Initially, around 60% of students were limited to simple text retelling. By the end of the study, 45% demonstrated the ability to independently analyze information and generate original ideas.

As part of the study, students analyzed an informational text describing an environmental issue in Fergana city. This real-life context increased engagement and facilitated deeper understanding.

Case Study: Environmental Changes in Fergana. The text described how urban expansion, including construction and deforestation (cutting down plane trees), disrupted natural water regulation systems. As a result, groundwater levels rose, leading to soil salinity, declining agricultural productivity, and structural damage to buildings.

Application of the “Question - Cause - Effect” Model. Students organized the events into a logical sequence, enabling them to clearly identify: the core problem (rising groundwater levels), its causes (deforestation and urbanization), and its consequences (environmental and socio-economic damage).

This structured analysis allowed students to move beyond surface-level understanding and engage in deeper reasoning.

Stage	Content formulated by the student	Skill (Bloom’s Taxonomy)
Question (Problem)	Why is the groundwater level rising in the city of Fergana, causing waterlogging?	Analysis
Cause (Facts)	Cutting down plane trees, construction of new buildings and roads (disruption of water evaporation and filtration).	Analysis
Effect (Outcome)	Deterioration of house foundations, decrease in crop productivity, and socio-economic damage.	Evaluation

Analytical Conclusion. Students did not simply accept the information “water is rising,” but independently identified the causal chain: “cutting down plane trees → disruption of natural drainage → economic damage.”

Development of Higher-Order Skills through the “3I” Method

Using this text as an example, students progressed to the “Creation” (Synthesis) stage as follows:

1. Identify: Students extracted key concepts from the text such as “waterlogged soil,” “filtration,” and “ecological problem.”
2. Interpret: They explained why cutting down plane trees affected the groundwater level (due to the tree’s high water evaporation capacity) from biological and ecological perspectives and evaluated the situation.
3. Innovate (Create): At this stage, students were asked to propose solutions to the question: *“How can the waterlogging problem in Aziza’s neighborhood be solved?”*

Examples of Students’ “Creation” Outputs

Engineering solution: Designing artificial drainage systems for the area. Biological solution: A restoration plan for planting tree species that consume large amounts of water. Social solution: Creating an awareness brochure to improve environmental culture among residents. Experimental Results. The results showed that after applying these methods: Students’ ability to identify hidden cause-effect relationships in texts increased by 34%; Their ability to propose solutions to problem situations (Creation level) increased by

Conclusion. Based on the conducted research and methodological analysis, the following conclusions were drawn:

The role of informational texts: Informational texts are a key tool for helping students understand real-world problems and analyze them logically. Unlike literary texts, such texts require evidence-based thinking, which accelerates movement to the higher levels of Bloom’s taxonomy.

Effectiveness of methods: The “Question-Cause-Effect” method systematizes students’ ability to identify root causes (analysis) and predict consequences (evaluation). The “3I” method elevates students from passive consumers of information to creative thinkers who propose new solutions.

Real-life relevance: Texts based on local and actual issues, such as the waterlogging problem in Fergana, increase students’ motivation toward learning. The skills developed—analysis, evaluation, and creation—not only apply to classroom learning but also support sound decision-making in students’ future social lives.

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