



RESEARCH ON LOGICAL THINKING IN LITERARY EDUCATION

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ABSTRACT

The article elucidates that in literary education, developing logical thinking in students, alongside critical and creative thinking, is one of the crucial tasks set for the subject. It is noted that this aspect is reflected in the educational reforms being implemented both regionally and globally, as it plays a significant role in an individual's development.

Fiction is an important tool for developing logical thinking. It enhances human consciousness and intellect in harmony with aesthetic pleasure, positively influencing critical and creative thinking. This process holds particular importance for both societal and personal development. Indeed, logical thinking forms the foundation of human mental activity, ensuring accuracy and systematic approach in problem-solving. This methodological approach safeguards individuals from errors and facilitates making correct decisions. Logical thinking plays a crucial role in decision-making, problem-solving, and managing complex situations in everyday life. It enables a person to accurately analyze situations and identify the root causes of problems. By examining facts and evaluating various options, one can arrive at the most appropriate decision. Logic and analysis contribute to the development of creative thinking processes, which in turn leads to the discovery of innovative solutions. In the modern era, logic plays a vital role in science, technology, and even daily life. Its impact on contemporary development is evident in artificial intelligence and computer science. Logic forms the basis of algorithms and programming. Today, it plays a key role in the creation and development of artificial intelligence systems. In production and scientific fields, logic is used for the accurate assessment of evidence and drawing logical conclusions. Logic has been instrumental in scientific revolutions and technological innovations. Logical thinking aids in finding creative approaches and solutions to problems. Logical analysis is crucial in addressing sociological and economic issues. The study of logical thinking is considered important from schools to higher educational institutions. Students' success in various fields of knowledge largely depends on their logical approaches. For instance, while it forms the basis for solving mathematical problems, conducting scientific research, and analyzing results, in language studies, the logical construction of speech and clear conveyance of thoughts are key to success. For societal development, individuals with logical thinking abilities have always been essential. This is because logical thinkers contribute to technological and scientific achievements, develop strategies to overcome complex social problems, and demonstrate leadership and managerial skills in their respective fields. The development of logical thinking is a vital necessity for every individual. Literature is not only a source of



aesthetic pleasure but also an important tool that helps systematize thinking and draw logical conclusions. Reading literary works encourages a person to imagine various situations and analyze them deeply. This process activates thinking and leads to an understanding of cause-and-effect relationships. In turn, identifying the causes and consequences of events in a work greatly contributes to the development of logic. Through the decisions and actions of characters, a person learns to draw conclusions for themselves. This process can be compared to a chain reaction. Literature develops logical and critical thinking through the analysis of oral and written communication. To understand the character and behavior of each protagonist in a literary work, the reader must think logically. Logical thinking is also necessary to grasp the underlying idea and philosophical meaning of the work. The flow of new ideas arising from literary imagery stimulates logical inquiry. Learning to express thoughts in a structured manner through the development of events, conflicts, and resolutions not only improves speech culture but also forms the skill of expressing ideas based on logic. Literary works included in school textbooks play a crucial role in developing students' thinking and broadening their worldview. Works of fiction discussed during lessons strengthen children's analytical thinking skills. Children learn to express their thoughts freely and form independent opinions. Education plays a crucial role as a leading activity in various aspects of social life in terms of thinking, realizing psychological potential, and achieving personal growth. Our ancestors, who highly valued the importance of logical thinking, paid serious attention to this issue in the education system since the Middle Ages. The scientific centers of Central Asia - Bukhara, Samarkand, and Merv - made significant contributions to the development of logic. In particular, thinkers such as Al-Farabi and Ibn Sina were pioneers in advancing logic. This field remained an integral part of science until the 14th-15th centuries.

In the 9th-11th centuries, the development of philosophical and logical doctrines in Eastern countries, particularly in Central Asia, was positively influenced by numerous translations of works by ancient Greek and Indian thinkers. It should be emphasized that the 9th-11th centuries are considered the most important period in the development of logical doctrines in the Near and Middle East. The increased demand for the study of logic during this period is attributed to three factors: firstly, the advancement of natural sciences and the growing need for scientific knowledge; secondly, the increased desire to correctly and fairly resolve issues related to social life; and thirdly, most importantly, the demand for correct reasoning and the necessity to distinguish true thoughts from false ones. The teaching of logic in madrasas held great historical significance and contributed to the development of science. Educational programs for students in madrasas were divided into three levels: the first, lower level; the second, middle level; and the third, higher or advanced level. A separate curriculum was developed for each stage, and progression from one level to the next was determined through final examinations. Along with this, the stipends received by students were also increased. The primary teaching methods consisted of lectures and debates. Lectures were attended by 100 to 400 listeners and students. In the madrasa, alongside works by Arab, Persian, and Turkic scholars, Arabic translations of ancient Indian and Greek scholars such as Claudius Ptolemy, Socrates, Plato, Aristotle, and others, as well as commentaries on them, were used as textbooks. Among literary works, the writings of Abulqasim Ferdowsi, Al-Farabi,



Ibn Sina, and Al-Biruni were studied with great enthusiasm. Students were admitted to madrasas based on examinations or competitions. Teachers were also examined and appointed by the head of state. In addition to teaching, the mudarris (teachers) also engaged in state affairs, such as serving as judges and muftis. At the end of the academic year, students took exams on the subjects they had studied. The exams were administered in the presence of parents. Students who successfully completed their studies at the madrasa A certificate (diploma) was awarded. The general aspects of the madrasa curriculum were developed in the 10th-12th centuries and subsequently improved over time.

According to Mutribi, he studied the fields of *ilmi maoniy*, *ilmi bayon*, and *ilmi bade'* for several years from Ismatullo Oxund, a prominent scholar of that time, based on the book "Mutavval" by the scholar Taftazani. In his youth, he participated in public lessons and debates in Bukhara conducted by the philosopher Mirzohon Sherozi, who came from Iran and was known by the nickname "Mulloi nav."

Samarkand continued to attract scholars as a higher educational institution in subsequent centuries. In his article on the life and work of Mutribi, the historian I. Bekjon writes that in the late 16th and early 17th centuries, "in Samarkand, the Madrasah Aliya of Saroymulxonim, Sultan Ulugbek, Amir Shohmalik, Khoja Ahror, Shayboniyxon, Abu Saidxon, Amirxon, Qozi Abdulg'afur shahid, Muhammad Ali Darvesh Tarxon, Soqiy Zominiy, Madrasah Xorjin, and other madrasas were operating. Highly knowledgeable and qualified teacher-scholars from the region, as well as scholars from Turkey, Iran, Azerbaijan, and Afghanistan, taught continuous lessons in exact, natural, religious, and humanitarian sciences at these institutions."

Aristotle is considered one of the first philosophers to establish logic as an independent field of science. He viewed logic as a tool that paved the way for other sciences. Aristotle's method, based on deductive reasoning, provided logic with a systematic and theoretical foundation.

Al-Farabi was a renowned Muslim philosopher, author, and scholar who lived in the 9th-10th centuries. His works encompass numerous topics related to philosophy, logic, music, and social sciences. He studied the works of earlier Greek philosophers and developed his own ideas. Al-Farabi was a renowned Muslim philosopher, author, and scholar who lived in the 9th-10th centuries. His works encompass numerous topics related to philosophy, logic, music, and social sciences. He studied the works of earlier Greek philosophers and developed his own ideas.

Another scholar who delved into logic was Ibn Sina. Although he continued Aristotle's logical system in his works, he enriched it with new perspectives. Ibn Sina sought to integrate elements of Aristotelian logic with Islamic concepts. He aimed to demonstrate not only the theoretical aspects of logic but also its practical significance. Ibn Sina states that logic protects a person from errors and leads them to truth, calling it the science of thinking. The scholar emphasized that the correct application of logical methods is the key to knowing the truth. In his works, he believed that clarity in thinking is crucial, as it allows one to avoid misconceptions and mistakes.

Today, the issue of guiding students towards logical thinking remains relevant in education. In the 21st century, family, school, social environment, and production will



continue to maintain their positions as the foundation of human development. The acquisition of behavioral and thinking skills can be achieved through personal education, utilizing analysis and learning from interpersonal relationships in the social environment. For this reason, research on logical thinking is being conducted in world science.

Research emphasizes the integration of logical thinking competencies across various disciplines. It builds upon previous studies aimed at improving thinking skills through approaches to the exact sciences. According to interdisciplinary integration, Wu Min Tuan (2015) The study reviews previous works, such as developing thinking ability through chemistry and Thai Thi Hong Lam's research on mutual thinking in mathematics. This demonstrates the widespread recognition that logical thinking can be cultivated not only in mathematics but also in other sciences. The integration of mathematics and biology has also been examined, recommending the use of mathematical-biological exercises to develop logical thinking skills. This indicates that logic and reasoning can be effectively applied in both mathematical and biological contexts. This approach aligns with comprehensive research that portrays logical thinking as a central skill spanning various disciplines. In works on teaching methods, researchers emphasize G. Polya's view that "the main task of teaching mathematics is to teach students to think." This reinforces the idea that effective teaching methods should aim to develop students' mental abilities. This concept is reflected in other educational fields as well.

Logic is also addressed in practical applications. Research proposes practical foundations for implementing logical thinking exercises in biology lessons. This demonstrates that theoretical knowledge can be transformed into specific learning strategies that encourage logical reasoning in students. This approach is similar to strategies studied in other disciplines. Overall, the study provides a comprehensive foundation integrated with existing research by emphasizing the importance of interdisciplinary logical thinking and supporting innovative teaching methods that foster this crucial skill in learners.

In countries undergoing educational reform, the lack of sufficient attention to logical thinking is noted as a specific shortcoming and obstacle. For instance, in Vietnam, secondary school teachers face several challenges in transitioning to a competency-based teaching approach. This transition is part of a comprehensive education reform that requires time and support from educational authorities to address challenges. According to the research findings, these difficulties include: changes in teaching methodology, as the shift from traditional content-centric teaching to a competency-based approach is complex for teachers. This change demands not only a radical transformation in teaching practices but also a focus on developing skills rather than merely conveying information in educational materials and strategies. Another issue is resource constraints. Many teachers may lack access to appropriate resources or support systems that would facilitate the development of competency-based teaching methods. This may hinder their ability to provide effective education in the new system. Assessment problems are also identified as an obstacle. Adapting assessment strategies from traditional knowledge testing to competency evaluation can be challenging. Teachers need to reconsider how to measure students' understanding and skills, which may require new assessment tools and methods. Professional development is crucial for teachers to understand and effectively apply competency-based approaches.



However, the availability and quality of such training can vary significantly, affecting teachers' ability to master new methodologies. It is also indicated as an important factor in instilling logical thinking skills. Teachers should incorporate logical thinking skills into various subjects, as developing these skills is crucial for enhancing students' overall competence. This process requires additional preparation and resources for effective implementation in the curriculum.

The transition to competency-based teaching is part of a comprehensive educational reform that requires time, training, and support from educational authorities to address these challenges.

Some researchers have studied the issue of combining creative thinking with logical thinking in art-related subjects. According to their findings, the integration of creative and logical thinking is achieved by combining pedagogical approaches and methods in the educational process, which contributes to the development of students' intellectual abilities.

Connecting creative and logical thinking can be achieved through the following methods and approaches:

1. Integration: It is recommended to use the principle of integration to explore the connections between creative (artistic) and logical thinking. This method plays an important role in developing students' intellectual abilities.

2. Pedagogical approaches: Combining creative and logical knowledge in the educational process helps students gain a deeper understanding. To effectively implement this process, teachers need to apply approaches focused on connecting knowledge and skills.

3. Methodological approaches: It is important to develop new pedagogical approaches to connect creative and logical thinking. Here, methods aimed at understanding the relationship between creative thinking and logical thinking are applied.

4. Practical experiences: It is recommended to conduct experiments and practical exercises to engage students in creative and logical activities. This process is carried out through creative games, problem-solving tasks, and other creative activities.

The relationship between intuition and logic in the thinking process has been studied in psychological and pedagogical literature. Intuition and logic are viewed as different, yet complementary components of thinking. Intuition often manifests as sudden insights or instantaneous realizations, such as ideas or solutions abruptly "coming to mind." Logic, on the other hand, employs a more systematic and consistent approach to solving problems where analysis and evaluation criteria are crucial. Contemporary researchers, including A. N. Luk, emphasize that consciously considering options is the simplest path to creativity: "Mental screening of options can occur at the subconscious level, where unsuitable paths are rejected, and the path leading to a solution enters consciousness."

Thus, intuition can provide the initial spark for the creative process, while logic organizes these ideas and enables their transformation into more comprehensive and well-founded decisions. According to B. M. Nemensky, emotional-figurative thinking also confirms this interconnection, as art requires both intuitive and logical approaches in the cognitive process. In the thinking process, intuition and logic play important yet distinct roles. Their effective integration can significantly enrich the outcomes of creative and analytical activities. Several important reasons for effectively learning logical thinking are presented. Developing



a culture of thinking is one such reason. The logical approach teaches the basic principles and forms of correct thinking, which enhances students' analytical capabilities. The ability to make correct decisions in problem-solving is described as another reason. Logic often plays a crucial role in identifying solutions to problems and drawing accurate conclusions. This knowledge allows students to minimize errors in their thinking process. Thoroughly mastering it is one of the fundamental requirements for building a healthy society where students are active members. This knowledge helps determine a student's place in society by introducing them to new methods of thinking. Formal logic encompasses effective methods and conceptual tools, which develop the ability for effective logical communication and argumentation in the educational process. For these reasons, mastering logical thinking plays a vital role in enhancing students' intellectual abilities and teaching them to think soundly.

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