

## **Theoretical Analysis of Improving Critical Thinking Skills of Students at Secondary Schools**

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**Abstract.** *This article explores the theoretical foundations and strategies for enhancing critical thinking skills among secondary school students. It examines various cognitive theories and educational models that support the development of analytical reasoning, problem-solving, and decision-making abilities. By investigating existing literature, the paper identifies key teaching methods, curriculum design principles, and classroom practices that can foster critical thinking. Theoretical frameworks such as constructivism, metacognition, and active learning are discussed to highlight their roles in shaping students' intellectual independence.*

**Key words:** *critical thinking, curriculum, problem-posing strategy, problem-based learning, qualification, approach.*

### **Introduction**

Improving critical thinking skills in secondary school students is a vital component of modern education. Theoretical analysis of this process involves understanding the concepts, frameworks, and methodologies that can effectively cultivate critical thinking in young learners. As educational theory continues to evolve, the importance of adapting these methods to different learners remains paramount. By embedding critical thinking throughout secondary education, schools can equip students with the intellectual tools necessary for success in both higher education and their future careers.

### **Methodology**

Several educational theorists and frameworks contribute to understanding how critical thinking can be developed in secondary schools:

Researcher Nor Tutiani Ab Wahid from MARA university of technology devoted her work “Developing critical thinking skills in secondary school students: The potential for strategic management through problem-posing instructional strategy” to find ways how to improve critical thinking skills of secondary school student in Malaysia. In her work she gives information about:

“Critical thinking is a crucial skill in education. Malaysia has consistently worked to integrate critical thinking into the secondary school curriculum, as many subjects at this level require significant critical thinking abilities. One key area that needs improvement to foster critical thinking is questioning skills. At present, numerous students fail to pose appropriate questions during lessons, especially those that demand deeper critical thinking. This highlights the need for an instructional strategy in the classroom to assist students in confidently asking the right questions and simultaneously encourage greater participation in active class discussions. The problem-posing instructional strategy (PPIS) is a method utilized to enhance critical thinking skills among students.

This paper aims to evaluate previous research in order to identify the various activities and techniques employed in PPIS and to organize them systematically for use as a strategic management tool to foster critical thinking among students. The objective of this study is to explore the potential of problem-posing instructional strategy (PPIS) as a means to cultivate critical thinking abilities in secondary school students. The primary research questions guiding this study are: 1. What are the PPIS activities that have commonly appeared in prior research? 2. In what manner can PPIS activities be systematically organized to develop a model for PPIS aimed at enhancing critical thinking? The results indicate that the methods and strategies used in earlier research can be organized in a logical order to create a model for PPIS. These results offer educators a framework for applying PPIS, along with the steps necessary to enhance critical thinking in the classroom.”

Another researchers Muhammad Jamil, Tahira Bibi and Uzma Shahzadi have written scientific work about “Critical Thinking skills development among secondary school students: An analysis of chemistry textbook grade X (2020)”. In their scientific work, they have informed that:

“The present research utilized qualitative analysis of the grade X Chemistry textbook with the assistance of NVivo 12 software to evaluate its role in the development of critical thinking skills. The textbook was chosen using purposive sampling. The results indicated that the textbook promoted critical thinking skills through various methods related to chemistry concepts in real-life scenarios and their applications, including posing open-ended questions, discussing the advantages and disadvantages of chemical processes, providing flow charts of industrial systems, comparing related concepts, and explaining the fundamental chemical principles behind phenomena. The textbook encouraged students to critically apply chemistry principles in practical situations, assess them from multiple viewpoints, thoroughly rationalize complex processes, and examine the strengths and weaknesses of different approaches. Furthermore, it encouraged them to explore the reasoning behind intricate chemical systems and to inquire into what motivates chemical reactions at fundamental levels. In addition, there should be a stronger emphasis on teaching critical thinking skills within the curriculum through inquiry-based activities.”

## **Result**

Teachers April Mercy E. Lapuz and Marlon N. Fulgencio have carried scientific work on topic “Improving the critical thinking skills of secondary school students using problem-based learning”. In their work, there are information about how to improve critical thinking skill and how to use problem-based learning. The summary of the work is below:

“In the academic sector, professors, instructors, faculty, and teachers always deal with the proper approaches to provide pupils with educational preparation. Teachers have demonstrated that having a creative approach to teaching is a crucial component of their qualifications. Today's students are taught differently than they were decades ago. Teachers may be degraded in several ways by the pupils. The prevalence of student bullying of teachers has been highlighted in literature, and this is concerning. As a result, it is crucial to give students knowledge in a sound and critical manner. Regardless of the subject matter—language, history, arithmetic, geography, or economics—teachers want to inspire students to think. The Greek philosophers Plato and Aristotle were among the first to use critical thinking. Additionally, Dewey emphasized the value of critical thinking. Studies conducted by educators that demonstrate the connections between critical thinking abilities and problem-based learning have produced favorable results for the pupils. Problem-based learning is a way to transdisciplinary learning, according to experts.”

An educator Clinton T. Sterkenburg from Grand Valley State University has written scientific paper on topic “The importance of critical thinking skills in secondary classrooms”. In his book, he gives information about below:

“Research indicates that a large number of students are deficient in critical thinking abilities. Being able to think critically is essential for success and responsibility. Many students struggle to grasp this crucial capacity, and they particularly struggle to start and carry out the process. Teachers must teach students key skills and recognize when specific teaching strategies or activities are not benefiting pupils, even if this is a challenging undertaking. Since every student is unique, it is important to take

into account their needs, which are related to how they absorb and process knowledge. Traditional teaching approaches that demand pupils to memorize facts have been found to be ineffective in helping them apply and comprehend the critical thinking process. Effective teachers therefore go beyond conventional teaching strategies and differentiate their lesson plans and activities to help students develop critical thinking abilities. This project offers examples of instructional and lesson design strategies that have been shown to aid students in understanding critical thinking, as well as some potential explanations for why students struggle with critical thinking. This project aims to give secondary educators a manual for dealing with the deficiency of critical thinking abilities in many of their students. Critical thinking skills will be extremely beneficial to pupils and help them become contributing members of society.”

## **Conclusion**

In conclusion, fostering critical thinking skills in secondary school students is a fundamental objective for preparing them for the challenges of the education. Theoretical frameworks, such as those proposed by educators like Bloom, Piaget, and Vygotsky, offer valuable insights into how critical thinking can be nurtured at the secondary school level. These frameworks suggest that critical thinking is not an inherent skill, but one that can be developed through targeted teaching strategies and a conducive learning environment. While these theoretical approaches provide a roadmap, the actual implementation of critical thinking strategies requires a nuanced understanding of the student population, curriculum, and institutional context.

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