Conceptions and Factors Determining the Improvement of Critical Thinking Capacity for Long-Term Training Students at the Military Technical Academy

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Abstract
Improving critical thinking capacity for long-term training students at the Military Technical Academy is a core requirement in building a revolutionary, regular, elite, and modern military force in Vietnam's current era of national advancement. This study conceptualizes the improvement of critical thinking capacity as a purposeful, organized intervention by educational subjects aimed at the synchronous development of four constituent elements: knowledge, skills, attitudes, and personal qualities of students. The process enables students to receive, process, and evaluate information in an objective, logical, and dialectical manner, thereby enhancing the quality of learning, scientific research, and comprehensive training while meeting the Academy's output standards for military officers-engineers.

The research identifies three basic factors that determine the effectiveness of this improvement process: (1) the quality of education, training, and development provided by the Academy (including curriculum, teaching methods, assessment, and practical activities); (2) the military pedagogical cultural environment (democratic academic atmosphere, discipline, political orientation, and interpersonal relationships); and (3) subjective factors of the students themselves (initial knowledge level, learning motivation, self-study awareness, and personal qualities such as intellectual independence and responsibility). These factors exist in a dialectical relationship, interact with one another, and collectively shape the quality of critical thinking development.

The study clarifies conceptions, contents, forms, and methods of improvement, emphasizing the integration of theoretical education with practical military training. It highlights that enhancing critical thinking capacity not only serves as an important educational outcome but also acts as a decisive means for training high-quality military engineers who possess intellectual fortitude, creativity, and the ability to fulfill command, management, and technical missions in the new situation.

Keywords: critical thinking capacity, long-term training students, Military Technical Academy, military education

1. Introduction

Currently, improving the critical thinking capacity of long-term training students at the Military Technical Academy is a core factor, serving both as an outcome and a means to form and develop a contingent of officers – engineers – party members who meet the requirements of building a revolutionary, regular, elite, and modern military in the nation's era of advancement. The process of theoretical and practical research shows that students' critical thinking capacity is formed from the synthesis of knowledge, skills, attitudes, and personal qualities, and is simultaneously influenced by the quality of education and training,

the military pedagogical cultural environment, and subjective factors related to the students themselves. These factors interact dialectically, both facilitating development and posing continuous improvement requirements to adapt to the context of military missions, science and technology, and international integration.

2. Conceptions on Improving Critical Thinking Capacity of Long-Term Training Students at the Military Technical Academy

According to the Vietnamese Dictionary, "improvement" is understood as "to increase, to raise to a higher level, to make better, better than before." [22, p.721]. "Improvement" is the activity in which a subject intentionally impacts an object, causing the object to move and develop in an increasingly better direction than before, in order to achieve the set goals, With this approach, the research topic conceptualizes that: Improving critical thinking capacity for long-term training students at the Military Technical Academy is a process of purposeful, organized intervention by educational subjects aimed at developing the elements of knowledge, skills, attitudes, and personal qualities of students, thereby making their ability to receive, process, and evaluate information increasingly refined in the performance of their learning and training tasks, meeting the requirements of the Academy's training output standards.

The purpose of improving critical thinking capacity for long-term training students at the Military Technical Academy is to increasingly perfect students' ability to receive, process, and evaluate information in an objective, logical, and dialectical manner, thereby enhancing the quality of learning, scientific research, and comprehensive training. Simultaneously, this process aims to cultivate intellectual fortitude and independence in cognition, contributing to meeting the requirements of the output standards for training military officers and engineers who are capable of applying knowledge to the practice of command, management, and professional activities.

The subjects involved in improving critical thinking capacity for long-term training students at the Military Technical Academy include: party committees and commanders at all levels; functional agencies; the faculty of lecturers; student management staff; mass organizations; and the students themselves. Among these, party committees and commanders play the role of orientation and leadership; lecturers are the force that directly organizes teaching and learning activities and guides thinking methods; student management staff organize the training environment; mass organizations contribute to creating conditions for critical thinking practice; while the students themselves are the direct subjects and hold the decisive role in the effectiveness of improving critical thinking capacity.

The object of improving critical thinking capacity for long-term training students at the Military Technical Academy is the critical thinking capacity of long-term training students, which is manifested through its constituent elements including knowledge, skills, attitudes, and personal qualities. The intervention to improve this capacity aims not only at enhancing each individual element but also at achieving the synchronous and unified development of the entire structure of critical thinking capacity.

The content of improving critical thinking capacity for long-term training students at the Military Technical Academy is essentially a process of intervention aimed at the synchronous development of the constituent components of critical thinking capacity, ensuring the integration of knowledge, skills, attitudes, and personal qualities of the students. Based on the established structure of critical thinking capacity, the focus of improvement content is on the following main aspects:

First, enhancing critical thinking knowledge for students.

This is the foundational content, creating the cognitive basis for critical thinking activities. Enhancing critical thinking knowledge firstly aims at supplementing and consolidating professional knowledge in military science and engineering, providing students with a basis to analyze and evaluate issues within their training field. Simultaneously, attention should be paid to equipping knowledge of scientific methodology, principles of logical and dialectical thinking, helping students clearly understand how to approach and process information scientifically. Furthermore, enhancing critical thinking knowledge also includes expanding understanding of military practice, management, command, and organization of technical activities based on firm and steadfast political stance and fortitude, thereby creating a foundation for students to apply critical thinking to specific situations. This content plays a prerequisite role, because the more comprehensive and profound the knowledge, the more scientifically grounded critical thinking activities become, avoiding subjective and impressionistic judgments.

Second, practicing critical thinking skills for students.

This is the central content, directly determining the level of critical thinking capacity manifested in practice. Skill practice should focus on developing the ability to selectively receive information, helping students distinguish between primary and secondary information, reliable and unsubstantiated information. Simultaneously, it is necessary to practice skills in analyzing and processing information based on applying logical and dialectical thinking operations, thereby forming the ability to evaluate arguments scientifically. Alongside this is the development of rebuttal and argumentation skills, helping students learn to present well-founded viewpoints and defend their positions persuasively. Furthermore, practicing the skill of identifying new problems is also significant, contributing to the formation of independent and creative thinking. This content plays a central role because critical thinking capacity is only confirmed through the ability to perform thinking operations in learning and training activities.

Third, forming and developing a scientific critical attitude for students.

A critical attitude plays a guiding role in the application of critical thinking knowledge and skills. This content focuses on cultivating in students a spirit of objectivity, impartiality, respect for scientific truth, a refusal to passively receive information, while also avoiding manifestations of extreme criticism or arbitrary negation. The formation of a critical attitude is also associated with developing a receptive mindset, a willingness to listen and accept valid opinions, thereby creating a democratic and scientific academic environment. A proper attitude ensures that critical thinking activities are constructive in nature, contributing to improving the quality of students' cognition.

Fourth, cultivating personal qualities in critical thinking.

This content aims at developing qualities such as independence in thought, intellectual fortitude, scientific

honesty, and the ability to self-regulate one's cognition. This is a factor that ensures the depth and sustainability of critical thinking capacity. Cultivating personal qualities helps students maintain steadfastness in the face of unsubstantiated viewpoints, while also knowing how to adjust their cognition when new information emerges. In the military education environment, this content is also associated with fostering a sense of responsibility, discipline, and political fortitude, ensuring that critical thinking activities proceed in the right direction and align with training objectives.

The four contents above have a dialectical relationship, interacting with each other in the process of improving critical thinking capacity. Enhancing critical thinking knowledge creates the foundation for skill practice; skill practice is the realization of knowledge in practical activities; critical attitude guides the application of knowledge and skills to ensure scientific and revolutionary integrity; and personal qualities ensure the stability and depth of critical thinking activities. The integration of these contents forms a holistic development of students' critical thinking capacity, while also serving as a direct basis for evaluating the current state of improving critical thinking capacity in the training process.

The forms of improving critical thinking capacity for long-term training students at the Military Technical Academy include in-class teaching and learning activities, academic discussions, scientific research, academic seminars, discussion forums, practical activities, professional internships, as well as through the collective training environment and extracurricular educational activities. These forms create conditions for students to directly participate in the process of exchange, debate, and cognitive verification.

The methods of improving critical thinking capacity for long-term training students at the Military Technical Academy need to combine modern educational methods such as elicitation, problem-posing, group discussion, scientific debate, case study, and guided self-study and self-research. At the same time, it is necessary to closely combine theoretical education with practical training, and combine lecturer guidance with students' active engagement, in order to promote initiative, independence, and creativity in the process of forming critical thinking capacity.

Thus, improving critical thinking capacity for long-term training students at the Military Technical Academy is a process of purposeful, organized intervention aimed at the synchronous development of the elements of knowledge, skills, attitudes, and personal qualities of students. This process is implemented through appropriate content, forms, and methods, aiming to perfect the ability to receive, process, and evaluate information, meeting the requirements of learning, training, and the Academy's output standards.

3. Basic Factors Determining the Improvement of Critical Thinking Capacity for Long-Term Training Students at the Military Technical Academy

Improving critical thinking capacity for long-term training students at the Military Technical Academy is directly governed by three basic factors, which have a dialectical relationship, interact with each other, and are unified in the process of forming and developing the elements of knowledge, skills, attitudes, and personal qualities of students. These factors both create conditions for, guide, and determine the quality of improving critical thinking capacity in training practice.

First, the quality of education, training, and development provided by the Academy.

This factor plays a leading role, directly guiding and organizing the process of improving students' critical thinking capacity. First and foremost, the training curriculum content—comprising a system of basic scientific knowledge, military engineering specialties, and humanities and social sciences—provides the knowledge foundation for critical thinking activities. Designing the curriculum to integrate theory with practice, enhancing content related to problem-solving, situation analysis, and scientific research will contribute to developing independent thinking and multidimensional evaluation abilities.

Additionally, the teaching methods employed by the faculty play a decisive role in forming critical thinking skills. Active teaching methods such as scientific discussions, seminars, academic debates, problem-based learning, project-based learning, etc., create an environment in which students actively receive information, analyze, compare, and present well-founded arguments. Simultaneously, assessment and evaluation activities that emphasize competency, requiring students to explain and defend their scientific viewpoints, also promote the development of critical thinking skills.

Furthermore, the process of military training, professional practice, scientific experimentation, scientific research, and participation in practical tasks helps students apply knowledge to solve specific problems, thereby reinforcing a scientific critical attitude and the fortitude to evaluate situations. Thus, the quality of education, training, and development serves as the direct foundation for the integrated formation and development of the constituent elements of critical thinking capacity.

Second, the military pedagogical cultural environment of the Academy.

The military pedagogical cultural environment is the synthesis of relationships, norms, values, and methods of organizing academic and training life within the Academy, which profoundly influences students' critical attitudes and qualities. An academic environment that is democratic, respects scientific opinions, encourages exchange and debate based on logical reasoning and a constructive spirit will create favorable conditions for the development of critical thinking. Conversely, an environment lacking openness or leaning toward passive reception will limit the capacity to form this competency.

The characteristics of the military pedagogical cultural environment are also manifested in its organization, discipline, and clear political orientation. This helps students' critical thinking develop in a scientific, objective direction while still ensuring adherence to principles, avoiding falling into extreme skepticism or non-normative criticism. Simultaneously, the relationships between lecturers and students, among students themselves, and between students and management staff create a rich space for academic interaction, contributing to the formation of a receptive attitude, respect for arguments, and the ability to adjust viewpoints based on scientific reasoning. This factor is particularly important in cultivating critical qualities—the value-orienting component of critical thinking capacity.

Third, the subjective factors of long-term training students.

This factor plays a directly decisive role in the effectiveness of improving critical thinking capacity. First and foremost, the initial knowledge level and cognitive capacity of students affect their ability to receive and process information. Students with a solid knowledge foundation will have greater advantages in analyzing, comparing, and evaluating issues.

More importantly, students' learning motivation and self-study awareness determine the level of proactivity in developing critical thinking. Students with proper motivation, who actively engage in research, proactively ask questions, and participate in scientific debates, will quickly develop critical thinking skills. Additionally, personal qualities such as independence in thought, open-mindedness, objectivity, and willingness to take responsibility for scientific viewpoints are internal factors that create the depth of critical thinking. Furthermore, the characteristics of long-term military engineering training students—studying technical expertise while simultaneously training to become officers—imbue their critical thinking capacity with distinctive features: they must combine logical technical thinking with military dialectical thinking, and balance independence in cognition with organizational discipline. This further highlights the decisive role of subjective factors in transforming objective conditions into the actual capacity of each student.

These three factors exist in a unified dialectical relationship: the quality of education and training plays a leading, orienting role; the military pedagogical cultural environment creates conditions and space for development; and the subjective factors of students play a directly decisive role. The combined impact of these three factors determines the quality of improving critical thinking capacity for long-term training students at the Military Technical Academy in the current context.

In summary, improving critical thinking capacity for long-term training students at the Military Technical Academy is governed by three basic factors: the quality of education, training, and development; the military pedagogical cultural environment; and the subjective factors of students. Among these, the quality of education and training plays a leading, orienting role; the military pedagogical cultural environment creates conditions for development; and the subjective factors of students play a directly decisive role. The unified impact of these factors establishes the theoretical and practical basis for improving critical thinking capacity, meeting the requirements of training high-quality military engineers in the current period.

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