Research on the Construction of a Teaching Quality Assurance System for Military Colleges and Universities in the New Era Based on Total Quality Management

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Abstract. Military colleges and universities in the new era are the main front for the cultivation of new-type military talents. Teaching is the core work of education, and the application of scientific concepts and methods to construct a teaching quality assurance system is an important foundation for clarifying teaching objectives and requirements, promoting teaching reform, implementing teaching supervision and control. This article analyzes the applicability of total quality management concepts and methods to the teaching quality management, proposes corresponding author the meaning and composition of the teaching quality assurance system.

Keywords: Total Quality Management; Military colleges and universities in the new era; Teaching quality assurance system; construction.

1   Introduction

Article 7 of the Regulations on Education in Military Colleges and Universities (Trial Implementation), which came into effect on July 1, 2020, states that education in military colleges and universities must be centered on cultivating talents, adhering to the combination of theory and practice, teaching and scientific research, and military construction, following the laws of education in colleges and universities, deepening education reform, comprehensively promoting quality education, governing education according to law, strictly governing colleges and universities, implementing open education, improving the quality and efficiency of education. Teaching is a basic way to carry out comprehensive education and the center of their educational work, the lifeblood as well, reflecting their comprehensive strength. Improving teaching quality and cultivating talents capable of winning wars are the soul of the development of military colleges and universities, and teaching reform is an eternal theme. How to build a teaching quality assurance system that adapts to the needs of military transformation and leapfrog development, meets the requirements of "developmental evaluation" guidance, and operates efficiently under the background of deepening teaching reform is a major issue that must be faced in the new era.

2   Basic connotation of Total Quality Management

2.1   The meaning of Total Quality Management

In 1961, Armand V. Feigenbaum of General Electric Company proposed the concept of Total Quality Management (TQM), which is defined in his book Total Quality Management as "a set of rigorous and efficient quality systems that are built around product quality and provide all activities needed to provide products or services that meet the needs of users."

2.2   Characteristics of Total Quality Management

As an important stage in the development of quality management, TQM has the following characteristics compared to previous quality management methods:

2.2.1 Comprehensive quality management.

It refers to the object of total quality management - the meaning of "quality" is comprehensive, that is, generalized quality. It not only includes product quality, but also includes the quality of work and service on which product quality depends. It emphasizes the transformation from the past decentralized management that was only conducted locally to systematic, comprehensive and integrated management.

2.2.2 Quality management throughout the entire process.

It refers to the management of the entire process of product quality output, formation, and realization, that is, not only the final product quality, but also the process quality that the product quality relies on, including market research, design, manufacturing, use quality, maintenance, and other aspects. Emphasis is placed on changing the management from one based on post-inspection to prevention.

2.2.3 Quality management with the participation of all employees believes that quality management is not only the work of a few departments or individuals, but the common task of all.

It requires all relevant departments and personnel to participate in quality management activities according to their respective job characteristics, and to do their part to improve product quality and strengthen quality management. It emphasizes the transformation from management in which only a few people participate to the all.

2.2.4 Comprehensive quality management.

The methods used to manage quality are comprehensive and diverse, consisting of a comprehensive method system composed of multiple management techniques and scientific methods.[1] It requires multiple methods and advanced scientific technologies are used, in order to promote long-term, stable and continuous improvement in quality.

3   The applicability of TQM to the teaching quality management of military colleges and universities in the new era

What is high-quality teaching, what methods should be adopted, and how to improve teaching quality are topics of common concern for educators in various countries. [2] Since its inception, the concept and methods of Total Quality Management have been applied in the teaching quality assurance system of schools abroad, [3] It has important guiding significance and reference value for the reform of teaching quality management concepts and operational models in military colleges and universities in the new era, and is also applicable to the construction and operation of teaching quality assurance systems.

3.1   The emphasis on "quality first" meets the essential needs of teaching quality management

Talents are the key factor to promote the high-quality development of our military, to win military competition and take the initiative in future wars. "We must fully implement the policy of military education in the new era, comprehensively implement the strategy of building a strong military with talents, comprehensively deepen the reform and innovation of military colleges and universities, place the cultivation of talents in a more prominent position, and cultivate high-quality and specialized new military talents with both morality and talent", President Xi Jinping said. In the teaching and training process of military colleges and universities in the new era, it is also important to emphasize quality first. We must cultivate high-quality and specialized new military talents with both morality and talent, and to cultivate the ability to fight talents who win battles.

3.2   The emphasis on "systematic management" conforms to the holistic requirements of teaching quality management

Talent cultivation is a systematic project. Teaching quality management is a three-dimensional, comprehensive and integrated task that requires all the staff to have a quality awareness, so that quality behavior can be reflected in every teaching link at every moment.[4]The teaching quality assurance system is an integrated system composed of various elements, which is the unity of "teaching" and "learning", the unity of "teaching" and "management", the unity of "teaching" and "service", the unity of teaching and training, research and teaching support, student management, service support, and other units or departments, the unity of colleges, universities and troops. The teaching quality assurance system requires the "combined force" of various elements.

3.3 The emphasis on "process management" meets the requirements of the whole process of teaching quality management

In the new era, military colleges and universities should shift the focus of teaching quality from before students graduate to the beginning of their enrollment, and shift teaching management from the teaching result to the entire process from the beginning of teaching design to the end of teaching, that is, the cycle of troop talent demand-teaching goal-teaching plan-teaching implementation and monitoring-teaching result evaluation and feedback.

3.4 The emphasis on "continuous improvement" meets the developmental requirements of teaching quality management

Total quality management emphasizes continuous improvement of product quality. However, the development of the military in the new era requires that the talent training model must shift from "fighting the war with the people who have what" to "training and using the people who are needed for the war", forming a mode of talent supply driven by operational needs. In the process of ensuring the teaching quality of military colleges and universities, the management of teaching quality is regarded as a dynamic process and constantly improved. Firstly, it is necessary to meet the principle of advance in military talent training, focusing on the development trend of war and the needs of future wars, and striving to cultivate military talents capable of mastering future wars. Secondly, it is necessary to meet the principle of times in military talent training, and strive to cultivate military talents to meet the development of new forces in new fields and new qualities.

4 The meaning and composition of the teaching quality assurance system in military colleges and universities in the new era

The so-called new era military academy teaching quality assurance system is aimed at cultivating high-quality new military talents who can fight and win wars, and ensuring and improving teaching quality under the background of deepening education reform, comprehensively promoting quality education, governing education according to law, and governing colleges and universities strictly. It analyzes the formation process and various factors of teaching quality, sets up a unified and coordinated organizational structure, and forms an organic whole of teaching quality management with clear tasks, responsibilities, standards, systems, and procedural norms. This system is relatively stable, fits the requirements of "developmental evaluation", and operates efficiently. In accordance with the needs of the military's transformation and leapfrog development, the requirements of deepening teaching reform, and the concept and methods of total quality management, the teaching quality assurance system of military colleges and universities in the new era is divided into four systems. The four systems form a closed loop according to the requirements and practices of "compre-

hensive, whole-process, and full-staff", and together constitute the teaching quality assurance system.

4.1   Target system

The target value or target state of teaching quality is the starting point and end result of the quality assurance system. The goal and mission of the institution are the foundation of quality assurance. It should specifically include the quality policy of the institution, the quality objectives at all levels, and various quality standards, forming a scientific quality target system.

4.1.1 Quality policy.

The quality policy is the overall quality purpose and direction officially issued by the top management of military colleges and universities, guiding the practice of quality management. The quality policy is a commitment to students, parents, and the army, and is also the goal of the colleges and universities. It should fully consider the needs of students, parents, the army, and the country according to the military education policy in the new era, and determine a student-centered quality policy based on their own development foundation and level.

4.1.2 Quality objectives.

The basic goal of the teaching quality assurance system is to ensure that the education of the institutions meets the basic requirements of the army and the country, enhance the self-adaptability of the institutions, effectively utilize the resources inside and outside the institutions, continuously improve and enhance the effectiveness of the talent cultivation activities of the institutions, and achieve the teaching goal of "cultivating new-type military talents with fighting spirit and military soul consciousness, good moral character, strong physical and psychological health, excellent military quality, complex knowledge structure and comprehensive ability, able to adapt to various military tasks and challenges, and competent for the needs of the army positions".

4.1.3 Quality standards.

Teaching quality standards are the fundamental norms of the teaching quality assurance system, an important basis for universities to carry out teaching activities, and an important guarVantee for improving teaching quality.[5] Teaching quality standards are also the basic basis for teaching evaluation, which can be used to measure whether teaching activities are suitable and achieve the expected goals. It should scientifically and reasonably determine the quality standards for all aspects of the teaching process, guide the work of the teaching process, and ensure the realization of talent training goals. These standards include quality standards for various teaching elements in six areas, including disciplines, teaching content, faculty, teaching and research conditions, scientific research and academic research, and student management.

4.2   Organization system

The teaching organization and management system is an important component of the internal teaching quality assurance system in colleges.[6] Therefore, it is necessary to establish an organization structure that meets the requirements of the operation of the teaching quality assurance system in institutions, with clear responsibilities, clear authority, effective communication, and smooth operation.

4.2.1 Leadership organization.

It is generally composed of the president of the institution as the director, the vice president in charge of teaching as the deputy director, and the teaching management organization, teaching units, student management units, teaching support units, and other key leaders as the teaching quality management committee. They are responsible for formulating quality policies and objectives, unified leadership of the construction and operation of the teaching quality assurance system, and formulating relevant policies and measures.

4.2.2 Management organization.

It is usually the Quality Management Office or Teaching Supervision Center (depending on the establishment of each unit), with the main responsibility of organizing the construction and operation of the teaching quality assurance system under the leadership of the Teaching Quality Management Committee, regularly analyzing and statistically reporting teaching data, and conducting regular teaching evaluations.

4.2.3 Work organization.

The colleges and universities- level work organization is composed of the educational administration department, the teaching committee, the teaching supervision group, and student representatives, and is responsible for formulating relevant teaching systems, organizing the formulation of talent training programs, organizing and implementing teaching reforms, carrying out teaching monitoring, and proposing suggestions for improving teaching quality. The department-level teaching quality management organization is composed of the deputy director in charge of teaching in each department, the professional head, the supervision group, the director of the teaching and research office, and student representatives. It is mainly responsible for formulating talent training programs, organizing the formulation of professional teaching plans, teaching quality standards, etc. Each teaching unit is responsible for implementing various rules and regulations, quality standards, etc.

4.3   Resource security system

The resource guarantee system is a necessary condition for ensuring teaching quality. It is necessary to establish a well-defined and mutually supportive resource guarantee system around the goal of cultivating talents in the new era.

4.3.1 Human resources.

Human resources are the core of teaching quality assurance, including faculty, teaching management personnel, and student team leaders. The faculty team should meet the following requirements: firstly, the number is appropriate, the structure is reasonable; secondly, it can implement the fundamental task of cultivating people's souls and fostering morality, and the teachers' ethics and style are good; thirdly, the professional quality is good, and they devote themselves to teaching research and practice, actively participate in teaching construction, and ensure teaching quality. Fourth, the selection, appointment, training, use, and evaluation incentive system mechanisms are sound. Teaching management personnel are required to have the concept of "small organs, large services", always serve teaching activities, and actively cooperate with teaching and service teaching.[7] Student team leaders are required to strengthen awareness of rules and regulations, fully understand students, innovate management and education methods, and strengthen education and guidance for students.

4.3.2 Teaching conditions.

Teaching conditions and resources are the conditions for normal education and teaching work in colleges and universities. Strengthen the calculation of teaching guarantee demand, and achieve precise connection between the supply side and demand side of teaching guarantee,[8] including: (1) teaching venues, such as multimedia classrooms, multi-functional classrooms, computer classrooms, smart classrooms, etc., theoretical teaching venues, professional laboratories, training rooms, sports fields, training grounds, internship bases, etc., learning and entertainment venues such as libraries and cultural centers;(2) experimental and practical equipment and facilities, simulation training equipment, equipment models, etc.;(3) teaching materials, including main textbooks, supporting textbooks, reference materials, etc.;(4) teaching appliances, such as blackboards, projectors, audio equipment, wall charts, etc.

4.3.3 Information resources.

Information resources are various resources that use information technology to assist teaching and learning, and are the basic carriers for meeting informatization teaching. They include: (1) multimedia courseware and electronic textbooks, which are used for classroom teaching and self-learning;(2) online courses such as MOOCs, micro-courses, and audio courses;(3) virtual laboratories, which simulate experimental environments and processes through computer technology, allowing students to simulate experiments;(4) Virtual laboratory provides students with simulated experimental environment and conditions;(5) learning management systems, which use information technology to manage the learning process of students.

4.4   Supervision and control system

The supervision and control system mainly monitors and controls the key links and main contents of the teaching and training process based on the teaching quality ob-

jectives of the new era military colleges and universities, in accordance with quality standards and regulations, teaching management procedures, and other documents.

4.4.1 Teaching inspection.

Teaching inspections mainly include: (1) teaching process inspections, such as teaching preparation inspections, mid-term teaching inspections, and final course summary inspections ;(2) special inspections, such as examination paper construction inspections, course assessment inspections, and graduation design (paper) situation inspections.

4.4.2 Teaching-learning supervision.

Teaching-learning supervision has three responsibilities, which monitor the quality from three aspects: supervising and guide teaching, learning and management. It is an important link to ensure and improve the quality of teaching. [9] Teaching-learning supervision can be conducted by a supervision team consisting of relevant professional experts, teaching management personnel, relevant professional personnel from the army, and experts from other institutions, giving full play to the supervision, inspection, evaluation, and guidance role of supervision in teaching-learning and management work, so as to achieve the goal of improving teaching quality.

4.4.3 Teaching-learning evaluation.

Teaching-learning evaluation mainly includes: (1) evaluation of the learning quality of students. Students are the main body of learning and the embodiment of teaching effectiveness, It is very important to establish a diversified evaluation subject mainly based on student evaluation,[10]mainly involving comprehensive, objective and fair measurement and judgment of the learning process and learning outcomes.(2) evaluation of the quality of instructors' work, including comprehensive teaching evaluation, curriculum construction, teaching achievements, academic achievements, scientific and technological achievements, etc. It should be pointed out here that artificial intelligence technology should be used to carry out intelligent teaching evaluation and complete the evaluation of students' abilities and assessment results.[11]

5   Several suggestions for the effective operation of the teaching quality assurance system in military colleges and universities in the new era

To ensure the smooth operation and efficient functioning of the teaching quality assurance system in military colleges and universities in the new era, attention should be paid to the following aspects.

5.1 Adhering to the concept of "student-centered" and running through the entire process of teaching quality assurance system operation

Adhering to the concept of "student-centered" teaching quality assurance system, it is required to promote the comprehensive development of students and improve learning effectiveness as the goal, shift the focus from the development needs of universities and teachers to the needs of troops and students, from the "teaching" of teachers to the "learning" of students, from the monitoring of teaching processes to the monitoring of learning participation and learning outcomes, from teaching resources The construction of teaching conditions is transformed into the use of teaching resources and teaching conditions, and the measurement of students' academic performance is transformed into the measurement of their comprehensive quality.

5.2 Establish a standardized and efficient business system to ensure the comprehensive operation of the teaching quality assurance system

By systematically organizing the various links and aspects of teaching management, the business process of teaching management is reengineered. Specifically, it includes: 1. Developing a standardized workflow for teaching management business, developing a teaching management checklist, and distinguishing between types of routine work and innovative work; 2. Clarify the responsible parties, main content, specific arrangements, work cycles, business documents, and iconic achievements of each business; 3. Revise the work manual to clarify the main content and requirements; 4. Relying on the smart campus platform of universities, establish a teaching quality assurance system business system, and use the visual operation of the system to guide the development of business work, forcing the comprehensive operation of the teaching quality assurance system.

5.3 Establish a comprehensive and authentic data system to support the effective operation of the teaching quality assurance system

The teaching quality assurance system of military colleges and universities in the new era should be supported by "big data". By comparing the process and elements of the teaching quality assurance system, data content, associated elements, attribution permissions, and collection requirements should be clearly defined. A sound teaching quality management data system should be established, including student status management, teacher and student information management, classroom management, training plan management, course arrangement management, textbook management, exam management, quality monitoring feedback, etc., Strive to achieve the support function of "comprehensive and objective, real-time collection, data visualization, early warning and alarm, and one click export".

6   Conclusion

In the background of deepening teaching reform, the construction of the teaching quality assurance system in military colleges and universities should start from the needs of military transformation and construction, implement the concept of "quality first", emphasize the systematic, all staff, all process, and development of teaching quality. It should include target system, organizational system, resource system, and control system. At the same time, it is necessary to follow the student-centered concept, establish a standardized and efficient business system, and a comprehensive and authentic data system in order to promote the effective operation of the teaching quality assurance system.

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