



Research on the Problems and Countermeasures of Cultivating the Innovative Ability of Space Sergeants

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Abstract: Under the background of civil military integration, military civilian joint training of space sergeants is the specific practice of implementing the national military civilian integration strategy. In view of the fact that there are some shortcomings in the training of aerospace sergeants' innovative ability at the present stage, through investigation, we can understand the current situation of the army's demand, education reform and talent training effect, and take the army's demand as the basis. Based on the practical problems, this paper summarizes and analyzes the problems existing in the cultivation of innovative ability of aerospace sergeants and their causes. Based on the practical experience of innovative training of military cadets in recent years, this paper discusses the ways and Countermeasures of cultivating innovative ability from the perspectives of innovative personality, innovative environment, innovative consciousness, innovative thinking and innovative ability, the research results have important reference significance for improving the innovative quality of aerospace cadets.

Keywords: Civil-Military Integration, Personnel Training, Innovation Ability, Reform in Education

1. Preface

Military vocational education is different from general vocational education. It is the expansion and supplement of military college education and military training practice. It is an important way to cultivate high-quality professional new military talents with both morality and ability. It plays an irreplaceable role in improving the ability of officers and soldiers to perform their duties and meeting the needs of career development. In 2019, the Ministry of Education issued the national vocational education reform implementation plan, which clearly pointed out the need to improve the modern vocational education system and serve the military civilian integration development [1]. In the context of military civilian integration, how to improve the innovative quality of sergeants is a great challenge. "Innovation is the soul of national progress". President Xi repeatedly stressed that "innovation ability is the core competitiveness of the army". The report of the 19th National Congress of the Communist Party of China clearly put forward that "taking the road of strengthening the army with

Chinese characteristics, we should strengthen the construction of military talent training system and build an innovative people's army" [2]. As a military academy, it plays an important role in cultivating students' scientific and technological innovation quality. Due to the influence of traditional education concept and training mode, there are still many deficiencies in the cultivation of students' innovative quality [3]. Therefore, how to improve the education system and system of scientific and technological innovation quality training, cultivate the innovation consciousness of sergeant students, and improve the innovation ability and quality of sergeant students can greatly promote the development of military work and the improvement of military combat effectiveness.

2. Analysis on the Current Situation of Innovation Training

The teaching work of military vocational education should not only impart knowledge to students, but also cultivate

students' ability and quality. In the continuous teaching reform in recent years, the teaching mode of our school actively creates a learning atmosphere, creates teaching situations, uses information-based teaching means, combines modern science and technology, encourages students' innovative consciousness, and pays attention to the rich changes and opportunities in teaching activities. However, there are great differences in students' personality, and at present, classroom teaching often ignores people-oriented education, thus ignoring everyone's innovative potential.

Combined with the follow-up survey of students in school in recent years, the teaching reflection of teaching teachers and the feedback and situation of military receiving units, it is found that there is still a certain gap between the innovative quality of space sergeants and the post requirements of the army, which is mainly reflected in the following four aspects.

First, the foundation is weak and innovative thinking is not active. The common shortcomings of cadets are that their learning foundation is not solid enough and their theoretical foundation is weak. Part of them is influenced by the special enrollment system of military cadets. Most of them are secondary school or high school graduates. They have no solid learning skills, and have no strong learning ability. They are faced with a wide range of courses in higher education stage, lack of professional knowledge and some are unprepared. This leads to the vast majority of cadets satisfied with classroom teaching, rarely put forward questions, lack of active thinking, lack of understanding of innovation, lack of innovative thinking, not good at using existing conditions and creating new conditions, lack of further exploration spirit, lack of initiative of innovation.

Second, lack of inspiration, innovation awareness is not prominent. Because of the strict life management of military cadets, and their time of independent learning is scarce, there are also problems of weak self-control and poor self-discipline, which leads to the phenomenon that most students never study actively. Under the closed teaching and management mechanism, the students dare not express their own views boldly, do not actively consult the learning materials, pay no attention to the expansion of knowledge, rigid thinking, lack of innovative inspiration and lack of innovative awareness.

Third, it is enthusiastic, but lack of perseverance. It is reflected in the active enrollment of cadets in our school to participate in the scientific and technological innovation interest group, students' science and technology innovation competition and other projects, which has strong interest. But because of the knowledge is not wide enough, although it has a certain learning basis, it has a daunting mentality for the basic theory and other principled knowledge, and cannot study the complex professional knowledge deeply, and the logical thinking ability cannot be well trained. Facing some challenges, it lacks perseverance.

Fourth, the results are lack and the innovation driving force is lacking. Our students are almost all from professional related posts, and will also move to the Army posts in the

future. They can achieve basic operation such as equipment maintenance and other basic skills in class, and can also operate according to the rules to meet the basic requirements of the post. Although there is a certain degree of comfort, lack of further exploration spirit, and in the maintenance of equipment support and other aspects lack of good exercise. For the post innovation ability, there are some problems such as weak skills, insufficient design ability and poor expression ability, which limits the further development of innovation ability. Finally, because the innovation effect is not outstanding, the innovation reward and protection mechanism is imperfect, it also suppresses the innovation enthusiasm, which leads to the lack of innovation driving force.

3. Research on Countermeasures

The training of the innovation ability of the cadets of the space corps should first start with the students and cultivate a reliable innovative personality. Secondly, we should continue to promote teaching reform, create a campus innovative academic atmosphere, build a platform for innovative ability training, optimize teaching mode, update teaching content, keep up with the academic front, and lead the science and technology frontier into the classroom. Finally, we should pay attention to the joint training of military and land, integrate classroom teaching into the research equipment, and strengthen the training of innovative quality of space cadets.

3.1. Cultivate Reliable Innovative Personality

3.1.1. Theory Armed Mind

Ideal and belief, derived from persistence, become honed. Military vocational education students have been trained by the army and studied ideological and political education before entering school, and have a firm political position. But the current ideology is extremely severe. The hostile forces outside China and some organizations and individuals in China have constantly changed their methods, poisoning the people's thoughts, creating chaos and disturbing the people's hearts. Facing the rampant trend of the wrong trend of thought, we must strengthen the political education of the cadets and deepen the theoretical armed forces. They can truly understand the sacred occupation of military personnel and the mission and responsibility of military officers in the new era [4].

3.1.2. Forge Iron and Steel Will

The ancients said: "heaven will be the chief of the people, must first painstakingly, labor their muscles and bones, hungry body and skin, empty body, do a mess of their actions, so the heart is tolerant, once benefit it cannot." [5, 6] The position of space Sergeant talents is "craftsman, industry top soldier and technical expert in the military". As the operator of front-line position in the combat, it is important to shoulder the important mission, must have indestructible faith and brave and tenacious spirit, and be able to overcome all difficulties on the way forward. Strong will can regulate

the Cadets' own behavior, control their psychological state, stimulate the potential innovation consciousness. When facing difficult tasks, they will try to overcome the hardships and finish it, avoid the phenomenon of half way abandonment, and make the students can persist in the innovation activities and achieve success. For the will training of space sergeants, the first is to strengthen military training, high standards and strict requirements, forge the perseverance of students to bear hardships and work hard, and cultivate the character of military personnel who dare to bear and take risks. Second, we should strengthen the daily management of the cadets, help them form good living habits and cultivate good military style. Finally, we should organize some capacity development activities in time, such as field training, etc., to hone the students' willpower and enhance their self-confidence.

3.1.3. Cultivate Innovative Thinking

The most important thing to train students' thinking and expression ability is to reform teaching materials and classroom teaching methods. First, in the reform of teaching materials, teachers should try to choose excellent teaching materials for higher vocational colleges or new equipment textbooks which are closely related to the actual situation of the Army posts and conform to the characteristics of space Sergeant education and teaching. Secondly, teachers should innovate classroom teaching. In the course of teaching, we should adopt discussion method and scenario simulation method to create problem situation, assign tasks, guide students to think independently, organize the students to discuss, dare to express their own ideas and opinions, let the students master the knowledge learned in the process of participating in classroom activities, and broaden the students' thinking. Improve the students' thinking and expression ability [7, 8]. Finally, the school should organize more competition activities to exercise the students' thinking and expression ability, such as speech contest, debate contest, etc.

The core of joint training of military Sergeant innovation education is to train high-quality innovative military talents for the country. For example, in the course system of military officers with space measurement and control technology direction, innovative courses with space measurement and control characteristics should be added, such as introduction to space measurement and control system and other common subjects. Through the innovation course, let the students master the basic knowledge of innovation and clarify the basic principles of innovation; Cultivate the students' spirit of questioning and questioning; Let the students experience the fun in the process of innovation, stimulate the enthusiasm of innovation, increase their confidence and cultivate the team awareness of the students [9, 10].

3.1.4. Stimulate Learning Interest

Interest is the best teacher and the foundation of the students' innovation ability. Only when they are interested can they consciously observe, think and explore problems, and give full play to their subjective initiative [11]. "The

better is better than the better, the better is not the one who enjoys it". In the early stage of training the space cadets into the military academy, the propaganda film can be used to organize the directors of teaching and research departments and the professional leaders to carry out professional and military post cognition education, and introduce the future development prospects, professional characteristics, curriculum settings, teaching equipment, and the development prospects, characteristics, curriculum settings, teaching equipment, and the development of the major Information on the position of the army and the growth path of the sergeant, to clarify the professional orientation of the students and to stimulate the interest in learning.

3.2. Innovation of Teaching Concept and Means

3.2.1. Improve the Teaching Guarantee Conditions

Practical teaching is the characteristic and soul of vocational education. The high quality teaching hardware condition is the foundation and guarantee of carrying out practical teaching. Under the background of the current local "deep integration of schools and enterprises" to develop vocational education, military colleges and universities should conform to the trend of military and civilian integration, establish an education concept of "openness, integration and win-win"[12]. On the one hand, further communication with grass-roots forces and cooperation with local enterprises and institutions should be strengthened on the other hand. First, in local military industry groups (enterprises) and scientific research institutions. Establish new equipment training base, establish innovative practice teaching base in high-tech enterprises, make full use of local advantageous software and hardware resources, jointly carry out training on new equipment, new technology and new process, and broaden students' innovative vision. Second, strengthen exchanges and cooperation with grass-roots units, establish an effective operation mechanism, gradually form a "four in one" multi-functional comprehensive practical teaching base for teaching, scientific research, training and practice, and widely carry out teaching activities such as pre teaching, post practice, martial arts competition and exercise. It is a good situation to realize the in-depth integration of colleges and universities and troops and cultivate noncommissioned personnel.

3.2.2. Highlight the Main Position of Students

"Student centered" means "student-centered". We should really understand the students, what they need, what we teach, what they lack, and what we make up. At the same time, we should pay attention to the students' learning and enjoyment [13]. For space Sergeant cadets, the first thing is to improve the teaching and training system, systematically sort out all links, systems and measures in the teaching process, and perfect and demonstrate the talent training scheme, professional demonstration, curriculum, time division, teaching content, practice arrangement and quality training according to the characteristics of different majors and Posts; Each major formulates a set of standardized talent training

process, so that aerospace Sergeant cadets have rules to follow and evidence to follow from entering the gate of the military academy to graduation. Secondly, we should break the traditional classroom teaching mode of "teaching and demonstration", make the classroom closer to the army and actual combat, vigorously advocate innovative teaching methods such as "situation introduction, event traction and practical experience", and encourage students to think and study actively. Finally, we should actively provide platform support for students to carry out innovative practice. For example, we can set up "innovation time" in the curriculum to provide time guarantee for students to participate in innovative activities, set up students' innovation fund, encourage students to apply for small projects or carry out small inventions, and allow students to participate in the research of professional teachers, Improve innovation ability.

3.2.3. Build a Team of Excellent Teachers

Having a contingent of teachers with innovative quality is the fundamental guarantee for promoting innovative quality education in military colleges and universities. First of all, teachers should establish the awareness of daring to meet challenges and innovate, have divergent thinking and innovative thinking, have extensive interests and profound professional knowledge, and be able to creatively carry out teaching practice with a positive and innovative attitude [14]. Secondly, we should strengthen the training of young backbone teachers, and effectively improve teachers' innovative thinking and innovative ability through further study, taking up posts in the army and participating in various teaching and skill competitions inside and outside the army. Finally, we should pay attention to the cultivation of the innovative quality of the team cadres of the student team. The team cadres have more time and opportunities for close contact with the students. They are not only the teachers in the students' life and daily management, but also an important force in the cultivation of the students' innovative quality. The cultivation of the students' innovative quality should be included in the work scope of the team cadres [15].

3.2.4. Improve the Evaluation and Reward Mechanism

The independent innovation ability of sergeant cadets is closely related to the development of military colleges and universities. How to improve students' innovative literacy and cultivate innovative achievements is the key issue to be discussed. At present, there are still obvious defects in the innovation evaluation and reward mechanism of noncommissioned cadets, which is mainly reflected in the lack of standardized incentive mechanism and systematic incentive measures. Therefore, we should refine the work of the evaluation and reward mechanism, and actively build a compound evaluation and reward mechanism that integrates the two evaluation concepts of reward and punishment and development, is ability and achievement oriented, facing both the past and the future, can evaluate the innovative achievements of students and promote the all-round development of students.

3.3. Strengthening Joint Military Civilian Training

3.3.1. Production Training of Scientific Research Institutes

Scientific research institutes have gathered many professional scientific and technological talents and have unique advantages in scientific and technological innovation. In the context of civil military integration, noncommissioned cadets are encouraged to go to equipment research and development institutes for follow-up training, understand the development of new equipment, help cadets improve their comprehensive scientific research support ability, and strengthen cutting-edge thinking, innovative thinking and reverse thinking, which is not only conducive to the rapid formation of combat effectiveness of the military talent team, but also conducive to the shaping of innovation ability [16].

3.3.2. Dual Division Classroom of Military Enterprises

In recent years, with the deepening of the teaching reform of sergeant vocational education and the further increase of the demand for application-oriented Sergeant talents in the front line of weapons and equipment, military education urgently needs to form a high-level "double qualified" teaching team. First, school teachers should regularly go deep into the army, be familiar with the grass-roots management, equipment and technical support and management of the army, and timely understand the new theory, new technology and new equipment of the army and the ability and quality requirements for professional noncommissioned personnel. Second, invite equipment R & D technicians from military enterprises to enter the classroom to strengthen the shaping of students' innovation ability and collaborative innovation quality.

3.4. Campus Environment Construction

Campus culture is an atmosphere and an environment. It plays a role of spiritual guidance, edifying sentiment, honing will and imperceptibly in the cultivation of students' innovative quality, and gradually internalizes into students' innovative quality through externalization. Combined with the short training time of space sergeants in military academies, in terms of campus culture, we should focus on increasing publicity and education and improving the students' sense of belonging. Students can consciously integrate into the military academy environment by visiting the school history museum, learning the "school motto", singing the "school song", interpreting current affairs and hot issues, publicizing the deeds of advanced figures and various military characteristic competitions, integrate into the melting pot of the army, so as to strengthen the students' ideals and beliefs of serving the country [17].

4. Conclusion

Joint training of sergeants is an innovative measure to implement the national "military civilian integration" strategy. Improving the innovative quality of aerospace Sergeant cadets is an inevitable demand for cultivating new high-quality military Sergeant talents in the new era, an

inevitable requirement to adapt to the development of modern weapons and equipment, and an urgent need to improve the combat effectiveness of the army.

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