



Study on Teaching Models for Training a Specific Professional Skill in Armored Equipment for Emerging Talent Development

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Abstract. To establish a distinctive brand for talent cultivation, an emerging talent development plan is proposed. In accordance with this plan, specialized skills training courses in armored equipment for specific majors are introduced. This enables students to proficiently operate modern armored equipment, master specific professional skills, and utilize them flexibly to achieve professional technical standards. Focusing on the course teaching objectives and based on an analysis of the current status and issues in teaching and training, this paper explores the organizational methods for specialized skills training from three aspects: theoretical instruction, practical instruction, and assessment evaluation. This research is of significant practical importance in enhancing course teaching quality and efficiency, cultivating students with comprehensive and robust abilities, and laying a solid foundation for their long-term development.

Keywords: Emerging talent; specialized skills training; teaching model.

1 Introduction

To nurture top-tier emerging talents and establish a distinctive brand in talent development, the academy has proposed an innovative talent cultivation plan. According to this plan, specialized courses in armored equipment are offered in certain disciplines, allowing students to proficiently operate typical armored equipment, master professional skills, and flexibly apply them to achieve professional technical standards. By drawing on previous teaching and training models as well as the full process and all element training model, we aim to explore new models and cultivate professional talents with more comprehensive and solid abilities and qualities. Focusing on the cultivation of shooting proficiency among emerging talents, this paper addresses the objectives of course instruction. It analyzes the current state of training and its challenges, considering both course content and student characteristics. The study delves into three main aspects: theoretical instruction, practical training, and evaluation. By examining these areas, it proposes a teaching model for specialized skills training. This research holds significant practical value in enhancing the quality and efficiency

of course instruction, fostering students with comprehensive and robust capabilities, and laying a solid foundation for their long-term development[1][2].

2 Current Situation Analysis

Currently, courses for a specific professional skill in armored equipment are offered during the 7th or 8th semester. Through these courses, students are trained to proficiently operate equipment, excel in specialized skills, and organize equipment use flexibly, with some reaching the corresponding professional technical levels[3]. Upon investigation and analysis, the current status and issues of the course are as follows:

Firstly, in terms of training equipment and content, there is currently no implementation of using new equipment as the main training apparatus. Once training on new equipment for specialized skills commences, certain training sessions and their timings require optimization and adjustment.

Secondly, the current method of organizing practical teaching and training involves students only assuming one position, with teaching assistants taking on other roles. Equipment inspections and adjustments during training sessions are entirely managed by teaching assistants, who also lead students in maintenance, upkeep, and other duties. Teachers generally do not participate in guiding these activities. Although this teaching model reduces the burden on teachers and lightens the training load for students, it is not conducive to fostering comprehensive abilities in students. It also does not encourage the enthusiasm, initiative, and interaction between students and teachers. To cultivate emerging talents with robust professional capabilities and lay a solid, long-term foundation for future positions, further research and optimization of training organization methods are necessary.

Thirdly, although the current practice in course training emphasizes the cultivation of students' organizational training abilities, practical and effective strategies to implement these skills are sparse. It is essential to further explore and devise practical methods to cultivate and establish students' organizational training abilities effectively.

3 Research on the Instructional Model for Training in a Specific Professional Skill

Throughout the process of organizing and implementing the course, the focus remains tightly on the instructional objectives, addressing the course content and the characteristics of the students. Emphasis is placed on the practicality of teaching and training, with a focus on the comprehensive development of students' abilities, employing an "integrated" theoretical teaching model, "practical" hands-on teaching methods, and a comprehensive assessment approach. This approach aims to cultivate students with more comprehensive and robust skill sets.

3.1 The “Integrated” Theoretical Teaching Model

The Five-step Teaching Method.

Tailored to the characteristics of the course and the practical needs of the students, a distinctive five-step teaching method is formulated: Example Guidance - Problem Analysis - Theoretical Elaboration - Summarization and Refinement - Application and Extension. Guided by real-life scenarios, this method involves applying learned theories to analyze and solve problems, elaborating on key and challenging issues, drawing conclusions from specific instances, guiding students to distill general principles from these conclusions, and encouraging them to apply these general principles to other instances, thereby actively exploring new practical problems.

The “Inspiration-Creation-Integration” Thinking Cultivation Approach.

Given the abstract nature and practical relevance of the course content, the teaching approach largely employs the “Inspiration-Creation-Integration” method for instruction. Inspiration involves sparking new ways of thinking and nurturing students’ abilities to reason. Creation entails setting up scenarios to promote students’ problem-solving skills in real-world situations, while Integration involves incorporating discussions to enhance classroom engagement and develop students’ thinking.

3.2 The “Practical” Hands-On Teaching Methods

By employing a “three-before-three-after” training process consisting of “simulation before implementation”, “pause before action”, “simple and low-risk before complex and high-risk”, the instructional training comprehensively incorporates a “chartered” organizational approach and a “fusion-type” integrated skills development model that amalgamates basic skills, organizational training abilities, practical application abilities, and a holistic approach to enhancing mental qualities. Additionally, it integrates a “rotational” organizational training ability and a “practical” application ability, better supporting the goals of talent development and cultivating formidable professional abilities[4].

3.2.1 Implementation of the “Three-Before-Three-After” Training Process.

Through the “simulation before implementation”, “pause before action”, and “simple and low-risk before complex and high-risk” training approach, the goal is to enhance training efficiency and quality.

Firstly, simulation-based training establishes a solid foundation for essential skills, and practical implementation training reinforces the actual application of skills. Employing simulators for training in key skills allows students to reinforce their foundational technical abilities. Additionally, using a specific training control device, initial stationary practical implementation training is conducted in a stable mode, completing essential course training, and reinforcing the practical application of skills. This method aligns with the principles of professional skill development, boosting the efficiency and quality of instructional training[5].

Secondly, conducting stationary training first builds a strong base for individual skills and training processes, while subsequent mobile training enhances the practical application of equipment. Beginning with stationary training in relevant modes for the development of fundamental skills, subsequent mobile training focuses on improving these fundamental skills, aligning with the principle of progression from easy to difficult, simple to complex, and gradual advancement, thereby elevating the overall training quality. This involves organizing initial stationary training, followed by mobile training aimed at skill enhancement after completing the essential course training in the stable mode.

Lastly, the training progresses gradually, starting with simple and low-risk tasks and advancing to complex and high-risk scenarios, aiming to elevate the difficulty of training tasks. After the solidification of fundamental professional skills, the final evaluation stage examines the practical application of these skills. Employing a particular training control device, multiple iterations of mobile training in the stable mode are completed to solidify professional skills. During the ultimate assessment phase, simulating real scenarios closely evaluates students' mastery of professional skills and their actual application, aligning the training more closely with real-world situations and thus enhancing its effectiveness.

3.2.2 Comprehensive Utilization of the “Chartered” Organizational Approach.

To fortify students' equipment utilization ability and elevate their proficiency in professional skills, in addition to the rigorous training on cutting-edge new armored equipment and other professional skills, this course adopts a “personnel allocation, chartered training” organizational approach. According to the number of vehicle occupants, students are organized into fixed groups, with each student assuming the role of a full-time occupant for the entire journey. The training equipment remains constant, and under the guidance of teachers and with the assistance of teaching assistants, students are responsible throughout the entire journey for the maintenance, upkeep, and basic troubleshooting of the equipment within their assigned group.

3.2.3 Adoption of the “Integrated” Five-in-One Capabilities and Quality Cultivation Model.

Adhering to the integration of fundamental skills, equipment utilization capabilities, organizational training abilities, leadership skills, and professional ethos, this course pursues an all-encompassing “integrated” refinement of capabilities and qualities throughout the entire process[6][7].

3.2.3.1 Cultivation of “Practical” Equipment Utilization Skills.

Throughout the entire teaching and training process, students actively participate in various support tasks, such as equipment management and site maintenance, taking turns to fulfill different duties. Under the guidance of teachers and with the assistance of teaching assistants, students complete the necessary preparations before each training session. At the end of each day training, they carry out equipment maintenance, troubleshooting, and other related tasks. Upon the completion of instructional

training tasks, students organize equipment maintenance and sealing, allowing them to grasp the methods and skills of equipment utilization through practical experience and enhance their future employment capabilities in equipment operation.

3.2.3.2 Development of “Rotational” Organizational Training Abilities.

During repetitive exercises within the same training module, the initial organization is conducted by the teacher, followed by subsequent rotations led by students, with timely guidance and correction from the teacher. Prior to the implementation of each training module, students are assigned the role of training organizers, and they gain a comprehensive understanding of the training elements and organizational methods for each module through specific instructions. During the training process, students take turns leading the module, acting as assistants, and fulfilling various training support roles, engaging in practical exercises related to both organizational and support positions. This approach achieves the practical goal of “mastering training organization, becoming familiar with organizational positions, and understanding support positions”. After training concludes, students are involved in summarizing the training organization and developing training guidance plans, thereby improving their training organization abilities.

3.2.3.3 Cultivation of “Autonomous” Leadership Skills.

During the group training phase and certain training modules, students are divided into groups, and as organizers, they independently organize relevant training modules. The teacher’s role is primarily focused on initial guidance, monitoring the process, and providing feedback in the later stages, aiming to enhance the students’ command abilities within their respective professional skills.

3.2.3.4 Development of “Immersive” Professional Ethos.

During the instructional training, teachers lead by example and make full use of adverse weather conditions and challenging environments. They maintain high standards and strict discipline during prolonged, intensive, and high-risk training exercises, thereby fostering a strong sense of professional ethos among the participating students.

3.3 “Comprehensive” Integrated Assessment Approach

In pursuit of the “excellent” cultivation of professional capabilities, focusing on “fundamental skills + equipment operation + training organization + leadership abilities + professional ethos”, we implement a “comprehensive” full-process, full-module assessment encompassing “three combinations, three additions, and one veto”. This approach combines formative and summative assessments, integrates syllabus modules with professional technical demonstration assessments, and merges individual evaluations with group assessments, maximizing the effectiveness of teaching and training evaluations.

The assessment methods transition from singular summative evaluations to process-based assessments and from singular professional skill evaluations to compre-

hensive competence and quality assessments. The original course assessment already possesses comprehensive evaluation methods, with the theoretical assessment segment being relatively well-developed and requiring no further modification. Therefore, the focus is primarily on researching the practical assessment segment. The practical instructional training assessment is divided into: internship performance, foundational training achievement, individual vehicle training scores, and group training competency evaluations. The allocation of scores is redefined based on training duration. The design and assessment methods for new course modules should be integrated with the students' overall training performance, incorporating evaluations of equipment utilization capabilities, training organization abilities, and assessments of professional ethos. The assessment of professional ethos may be implemented using a "veto" system. The previous assessment of group training competency, encompassing the formulation of operational plans and on-site organizational command, should shift from a singular evaluation method based on group assessment to a combined approach involving both individual and group evaluations. Moreover, students' utilization of leadership thinking to solve training organization and command, including practical techniques and innovations, as well as the incorporation of engineering-thinking to address training technical problems, should serve as added merits in the final course score. This ensures that students firmly establish the concept of "emphasizing not only individual training but also group training, not only skills but also their application, not only outcomes but also processes, and valuing both results and performance", fostering the authentic development of students' "excellent" professional capabilities to meet future employment demands, adapting to the requirements of actual combat scenarios.

4 Conclusions

This paper primarily focuses on the organizational approaches to training in a specific professional skill for emerging talents in three aspects: theoretical teaching, practical instruction, and assessment evaluation. It proposes an "integrated" theoretical teaching model, "practical" hands-on teaching methods, and a comprehensive assessment approach. Some research findings have been widely applied in courses related to the training of a specific professional skill in armored equipment at undergraduate and vocational levels. These findings have significantly improved the quality and effectiveness of teaching and training, effectively enhancing the overall competence and excellence of students' abilities. They have laid a solid foundation for long-term development and hold vital reference value for the construction of other courses.

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