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The Application of "1+N" Practical Training Teaching Platform in Equipment Courses

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Abstract: In order to solve the problem of shortage of teaching equipment in modern military vocational education, further enrich teaching resources, improve the learning effect of equipment courses, enable students to understand and master the new technologies and methods at the forefront of modern equipment, and expand their horizons, this article constructs a "1+N" practical training platform for equipment courses, focusing on solving problems such as difficult to see equipment course operation demonstrations, difficult to understand internal structures, and difficult to meet practical training time. This platform adjusts and reconstructs the equipment course system and teaching content, integrating advanced, innovative, and challenging experimental projects into basic courses. It presents teaching resources such as virtual simulation experiments, micro courses, and MOOCs, and further cultivates students' comprehensive ability to solve complex problems and advanced thinking ability for independent innovation through flexible teaching modes such as mixed online and offline, optional and mandatory, to maximize the ability of students to take up positions and prepare for war.

Keywords: Practical training platform; Military equipment; Position appointment.

1. Introduction

With the continuous deepening of modern military education concepts and the advancement of technological means, the position of practical training in equipment courses is becoming increasingly important. Equipment courses are an important component of military education, and their teaching quality directly affects students' practical abilities, job responsibilities, and combat effectiveness. However, traditional equipment course teaching has problems such as insufficient practical links, scattered teaching resources, and difficulty in meeting practical training time. To address these issues, we propose a teaching model based on the "1+N" practical training platform and apply it to the teaching of equipment courses.

2. The Composition and Characteristics of The "1+N" Practical Training Teaching Platform

The "1+N" practical training teaching platform refers to a diversified teaching mode that revolves around a unit's independently built equipment course core training platform, equipped with multiple online open platforms that can be relied on. Among them, "1" represents the core training platform, and "N" represents multiple auxiliary open platforms. The characteristic of this teaching mode lies in its flexibility and scalability, which can be targeted in resource allocation and teaching design according to different course needs and teaching objectives.

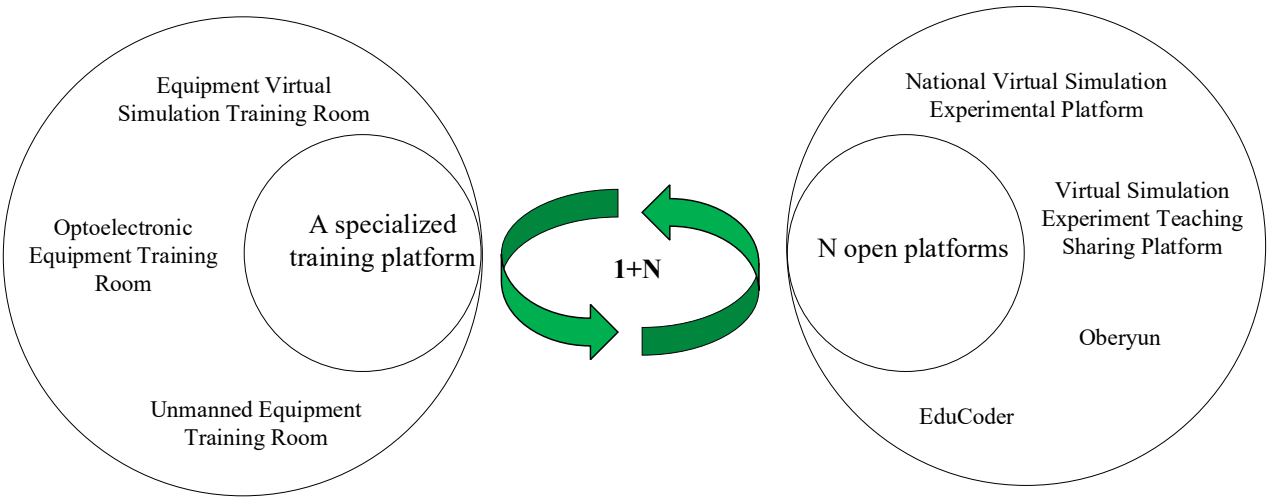

Figure 1. "1+N" Practical Training Teaching Platform

A core platform: It is a specialized training platform for equipment courses independently constructed by the unit. The training platform includes an optoelectronic equipment training room, an unmanned equipment training room, and an equipment virtual simulation training room, mainly focusing on courses such as equipment basics, operation, maintenance, and combat applications.

N open platforms that can be relied on: mainly including the National Virtual Simulation Experiment Platform, EduCoder Practice Teaching Platform, and the Virtual Simulation Experiment Teaching Sharing Platform constructed by major universities, serving as complementary virtual teaching resource platforms.

In equipment courses, the application of the "1+N" practical training teaching platform has significant advantages. Firstly, it can provide a realistic operating environment and practical opportunities, helping students better understand and master the operation and maintenance skills of equipment. Secondly, this teaching mode can simulate various complex work scenarios and fault states, allowing students to accumulate practical experience in a safe environment and improve their ability to solve practical problems. Finally, the "1+N" practical training teaching platform also helps to cultivate students' teamwork and communication skills, promoting the improvement of comprehensive quality.

The "1+N" practical training teaching platform has the following characteristics:

(1) Integration: This platform integrates multiple teaching resources and methods, providing students with a more comprehensive and systematic learning experience.

(2) Personalization: It can provide personalized learning plans for students based on their interests and abilities, improving their learning efficiency.

(3) Practicality: By simulating real work scenarios and workflows, students can master the knowledge and skills of equipment courses in practice.

(4) Assessability: This platform can track and evaluate the learning situation of students, providing teachers with more scientific teaching basis.

3. The application of "1+N" Practical Training Teaching Platform in equipment courses

In view of the characteristics of military vocational education, equipment-related courses, on the basis of following traditional teaching methods, actively promote case teaching method, project-driven teaching method, theory-practice integration teaching method, and actively implement the teaching mode of "teaching-demonstration-exercise-evaluation". The teaching should establish a practical teaching curriculum system that focuses on technology and skill training, integrates theory and practice, combines explanation with practice, adopts situational teaching and task-driven. Teaching is the process of teachers integrating theoretical knowledge of equipment basic knowledge, basic principles, technical requirements, and operation processes into practical training projects. Demonstration is the process of teachers simulating real battlefield environments to demonstrate the configuration and use of various equipment. Exercise is the process of students operating equipment based on teachers' explanation and demonstration, experiencing the essentials and steps of skill operation. Evaluation is the process of students self-evaluating and evaluating each other, as well as teachers evaluating students' in-class performance, stage effect evaluation, and social evaluation. The four links are closely linked and form a complete teaching activity process. By integrating teaching objectives, teaching processes, teaching content, teaching methods, and teaching evaluation, the goal of achieving the teaching effect of "learning, doing, and using" is achieved.

Students make full use of the self built core training platform to carry out practical training tasks such as equipment assembly and debugging, testing and damage assessment, maintenance and repair, and rely on the system platform to carry out virtual maintenance training. At the same time, relying on high-quality military and civilian practical teaching resources, students can intuitively demonstrate operations, master the internal structure of equipment, experience the actual combat environment, and achieve comprehensive improvement in learning effectiveness.

The equipment courses under the "1+N" practical training teaching platform are conducted in the form of offline practical operations combined with online virtual simulation experiments. The online and offline experimental teaching content complements each other, each with its own emphasis. Offline practice cultivates students' basic equipment operation skills through interrelated and confirmatory practical operations. Online experiments closely follow cutting-edge scientific research technologies, create a practical background, and focus on expanding students' practical application abilities. In the process of equipment teaching, teachers arrange preview tasks before class based on the teaching progress. During each equipment class, they explain background knowledge, equipment principles, operating steps, and precautions related to basic equipment. They also selectively explain and guide the key and difficult points of expanding experimental projects. Students complete the learning and operation of offline basic practical projects in the classroom, and independently review and expand their learning of online resources according to the course arrangement after class. Due to the unlimited time of online learning, students can learn anytime and anywhere, and can discuss learning content with teachers and students in the discussion area at any time. Through pre reading on the front line, practical exercises in the middle line, and online review after class, students have mastered basic equipment operation skills. Combined with online expansion courses, they can expand their equipment operation ability from multiple perspectives and enhance their comprehensive application ability of equipment skills.

In order to verify the application effect of the "1+N" practical training teaching platform in equipment courses, we conducted an empirical study. We have selected two classes, one using traditional teaching methods, and the other using the "1+N" practical training teaching platform for teaching. After the end of the semester, we conducted exams and questionnaire surveys on students from two classes. The results showed that the exam scores of students in the class using the "1+N" practical training teaching platform were significantly higher than those in the class using traditional teaching methods, and students also had higher evaluations of the "1+N" practical training teaching platform.

In addition, there is another example to illustrate the

application effect of the "1+N" practical training teaching platform in equipment courses. A teacher majoring in mechanical engineering at a certain university used the "1+N" practical training platform when teaching the course "Fundamentals of Mechanical Design". By using this platform for simulation design and manufacturing, students not only improve their practical abilities, but also enhance their understanding and interest in mechanical design. In the final exam, the average score of students in this class was more than 10 points higher than other classes.

4. Conclusion

The "1+N" practical training teaching platform is an effective teaching tool for equipment courses. By integrating various teaching resources and methods, it improves students' practical ability and comprehensive quality. In future teaching, we should further promote and apply the "1+N" practical training platform to contribute to cultivating more high-quality talents.

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