

Application of Action-Oriented Method in Practical Teaching of Mechanical and Electrical Majors in Higher Vocational Education

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Abstract: The practical teaching of mechanical and electrical majors in colleges is the key link to foster students' practical operation skills and practical application abilities. This paper introduces an action-oriented teaching method to enhance students' practical ability and innovative ability, thus improving teaching effect and training quality. This paper expounds the basic concept, characteristics and application practice of the action-oriented method in detail, and proves the effectiveness and superiority of this method in the practical teaching of mechanical and electrical majors through case analysis and teaching effect evaluation.

1. Introduction

Owing to the rapid progress of economy, science and technology, the demand for mechanical and electrical majors is increasing, and the training task of mechanical and electrical majors in colleges is also becoming increasingly crucial. However, the traditional teaching of mechanical and electrical majors often pays too much attention to the instillation of theoretical knowledge, and ignores the cultivation of students' practical ability and innovation ability, which cannot meet the needs of modern mechanical and electrical industry. Therefore, how to enhance the practical ability and innovation ability of students in mechanical and electrical majors has become a key issue in the teaching reform of mechanical and electrical engineering.

2. Basic Concept and Significance of Action-Oriented Method

Action-oriented method is an action-based teaching method. Its basic concept is to take students' practical actions as the leading factor, stimulate students' learning interest and enthusiasm through practice, and foster students' practical operation ability and innovation ability. This method emphasizes students' practical operation and experience, emphasizes students' autonomy, independence and inquiry in practice, focuses on students' experience accumulation and practical reflection, and improves students' problem-solving ability and comprehensive quality. The purpose of action-oriented method is to promote the all-round progress of students, so that they can better adapt to the needs and trends of society.

The application of action-oriented method in practical teaching of mechanical and electrical majors is greatly crucial. First of all, action-oriented approach can help students better master practical skills and enhance their practical and innovation abilities. Secondly, action-oriented teaching can push cooperation and communication between students and enhance team cooperation ability. Students can also find their own shortcomings and problems in the practice of action-oriented method, and push their self-reflection and growth. Finally, action-oriented teaching can strengthen students' practical experience and ability, and help improve their employment competitiveness and actual work performance. Therefore, the application of action-oriented method in the practical teaching of mechanical and electrical majors is greatly crucial in fostering practical operation skills and enhancing employment competitiveness.

3. Characteristics of Action-Oriented Teaching Method

3.1 Emphasis on Practical Operation

The action-oriented teaching method focuses on the practical operation of students, so that students can learn and master knowledge and skills through practical operation.

3.2 Student as Center

The action-oriented teaching method takes students as the center of learning, so that students can play an active and creative role in learning and master the dominant power of learning.

3.3 Problem-Oriented

The action-oriented teaching method emphasizes problem-oriented, and promotes students' learning and thinking by guiding students to solve problems.

3.4 Emphasis on Experience Accumulation

The action-oriented teaching method focuses on the accumulation of students' experience. Through reflection and summary, students can continuously accumulate and improve in practice ^[1].

3.5 Teacher as Instructor

In the action-oriented teaching method, the teacher's role is to guide students to learn, solve problems and summarize experience, rather than the traditional teacher.

4. Shortcomings in the Application of Action-Oriented Method in Practical Teaching of Mechanical and Electrical Majors in Higher Vocational Colleges

4.1 Inadequate Practical Teaching Facilities

In the practical teaching of mechanical and electrical majors, the training base is a very crucial resource and the main place for students to carry out practical teaching. However, the training base and practical equipment in some colleges are not perfect, affecting the teaching effect ^[2].

4.2 Students' Low Initiative and Participation

In learning, some students may feel that the practical tasks are too cumbersome, lacking motivation, just completing the tasks, and lacking interest and enthusiasm for practical operation. Students may lack the opportunity to communicate and cooperate with each other, lack in-depth exploration and thinking of problems in practice, and may also feel isolated. In addition, teachers may neglect students' initiative and participation in the teaching process, and adopt a single teaching method, which leads to students' inability to explore and play their creativity freely in practice ^[3].

5. Application Strategies of Action-Oriented Method in Practical Teaching of Mechanical and Electrical Majors in Higher Vocational Education

5.1 Emphasize Students' Initiative and Participation

The action-oriented teaching needs to emphasize the initiative and participation of students. Teachers can guide students to discuss and think through specific questions, and design appropriate practical tasks and activities, so that students can participate in them, actively practice, and enhance students' practical operation ability.

5.2 Design Specific Situations and Tasks

The teaching of action-oriented method needs to be close to the actual situation, so that students can learn and master knowledge and skills in practice. Teachers can design some specific situations and tasks to let students solve problems, find problems, reflect and summarize in practice, so as to enhance students' problem-solving ability. For instance, to stimulate students' learning interest and

motivation, teachers can design challenging tasks, such as designing an actual mechanical device or solving an actual mechanical failure. This will enable students to participate more actively in practice, thus enhancing their learning enthusiasm and autonomy ^[4]. In practical teaching, teachers should provide sufficient resource support, such as laboratory equipment, tool materials, technical documents, etc., so that students can fully use these resources for practical operation and learning. In addition, teachers can also guide students to use information technology resources such as the Internet for learning and communication. In practical teaching, teachers should guide students to reflect and summarize in practice, and help them deepen their recognition and mastery of theoretical knowledge. Teachers can design some study notes or practice reports, and ask students to record their practice process and experience, and reflect and summarize. In addition, it is also crucial to encourage students to cooperate and learn from each other. Teachers can use group discussions, teamwork and other methods to let students complete tasks together, communicate and learn from each other, and enhance their practical and cooperative abilities. Teachers should also give timely feedback and guidance to help students better complete tasks and enhance learning effects.

5.3 Focus on the Accumulation and Sharing of Practical Experience

Action-oriented teaching emphasizes practice, and the results of practice need to be summarized and shared. Teachers can encourage students to actively share their practical experience. The process of sharing experience can promote exchanges and cooperation between students and help students better recognize and master the knowledge and skills in practice. In practical teaching, teachers should encourage students to share their practical experience and achievements through reports, demonstrations, etc. Teachers should also give feedback and guidance in time to help students enhance their practice results. While sharing experience, students can also learn, exchange and cooperate with each other to promote their growth and improvement. In addition, teachers can also use some teaching tools and platforms, such as online classes, learning communities, etc., to provide students with broader sharing platforms and opportunities, so that students can share their achievements and experiences with more people, get more feedback and suggestions, and continuously enhance their practical ability and innovative thinking ^[5].

5.4 Timely and Accurately Feedback and Evaluate

The teaching of action-oriented method needs to give students feedback and evaluation in time, so that students can know their learning and progress in time, and make corresponding adjustments. Teachers should give timely feedback and evaluation according to students' performance, and guide students to further enhance. The accuracy of feedback and evaluation is also very crucial. Teachers should fully recognize the actual situation of students and give accurate feedback and evaluation to help students better know and master knowledge and skills.

5.5 Improve the Construction of Training Base

Mechanical and electrical specialty is a practical specialty, which requires students to have solid theoretical knowledge and practical operation ability. The teaching of action-oriented method can help students better master practical skills, so it is greatly crucial to apply action-oriented method in the practical teaching of mechanical and electrical majors. In terms of improving the construction of training base, we can start from the following aspects:

5.5.1 Provide Advanced Training Equipment

The practical teaching of mechanical and electrical majors needs to rely on the training equipment, so it is very crucial to update and upgrade the training equipment. Colleges should constantly introduce new training equipment to ensure that students can access the latest technology and equipment, so as to better grasp practical skills.

5.5.2 Establish Practical Projects

For different practical projects, teachers can design different practical tasks and activities so that students can learn and master knowledge and skills in practice. Students can also find and solve

problems in practice and enhance their practical ability and adaptability.

5.5.3 Establish Practice Scenarios

The establishment of practice scenes can enable students to practice in simulated real scenes and enhance their practical operation ability. For instance, in mechanical and electrical majors, practical scenarios such as machining workshops and electrical control rooms can be established to enable students to better grasp practical skills.

5.5.4 Establish a Practice Exchange Platform

Students may encounter various problems and difficulties in practice, so it is very crucial to establish a practical exchange platform. Colleges can establish an online exchange platform or a practice exchange community where students can exchange experiences and share achievements, and promote exchanges and cooperation between students. Teachers can also provide guidance and answer questions on the platform to help students better master practical skills.

6. Conclusion

In general, action-oriented teaching is an efficient and practical teaching method, which can effectively enhance students' practical operation ability and problem-solving ability, especially for the practical teaching of mechanical and electrical majors in colleges. In application, it is necessary to focus on the rational design of practical tasks and activities, the active participation and sharing of experience of students, and also focus on solving possible problems to enhance the teaching effect. Through constant exploration and practice, the application of action-oriented method will inject new vitality and ideas into the practical teaching of mechanical and electrical majors in colleges, and better serve the progress of the industry and society.

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