Research on the Practice of Railway in Higher Vocational Colleges Based on Computer Action-oriented Teaching Model

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Abstract. With the continuous development and innovation of computer technology, China's railway transportation industry has gradually moved to the forefront of railway development in the world. In the good market prospect, the cultivation of talents has become the core task of development, and the rapid development of railway transportation industry has also brought severe teaching pressure. In recent years, under the guidance of the idea of "employment-oriented and ability-ability as the standard", higher vocational education in, but it is also facing pressure such as the decline of the quality of students and the continuous improvement of the requirements of enterprises for human quality. From the follow-up investigation of employers, it is found that most enterprises think that the graduates' adaptability to the post is poor, and the school does not really teach the students the applicable knowledge and skills in their work. On the other hand, teachers reflect difficult to teach, students feel difficult to learn, therefore, in the classroom often appear "teachers speak exhausted, students learn two minds" situation. In the actual teaching process, the traditional teaching method has brought many drawbacks to the teaching of railway transportation specialty in higher vocational colleges. Therefore, in order to meet the needs of the current market development, we should reform the teaching methods based on the computer-oriented teaching mode.

Keywords: Computer, Action-oriented Teaching, Major in Railway Transportation

1. Comprehensive overview of action-oriented teaching

Action-oriented teaching is a new trend of thought in the teaching theory of vocational education since 1980s. It is based on imparting a professional knowledge and skills, comprehensively enhancing students' behavioral ability, so that students can systematically consider problems, understand the significance of completing their work, clarify the content and timing of the next step, and have the ability to plan, implement and check independently: on the premise of being responsible for society, they can cooperate and communicate effectively with others: work actively, carefully and conscientiously, with only a strong sense of responsibility and quality; Teaching methods with the ability to develop sustainably in the field of expertise to meet future needs.The action-oriented educational thought mainly comes from people's thinking about the new requirements of professional
talents in reality and future society and the re-understanding of the concept of education and learning. UNESCO's International Standard Classification of Education redefines "education" by replacing "education is an organized and continuous transfer of knowledge" with "education is considered to lead to learning, organized and continuous communication." Here, learning refers to any progress and improvement in an individual's behavior, information, knowledge, understanding, attitude, values or skills. Communication is the transfer of information (including messages, ideas, knowledge, strategies, etc.) between two or more people. Mr. Du Lin, an expert at Berlin University of Technology, vividly compares learning to the process of "breathing", emphasizing that learners should not only "suck in" but also "exhale". "The core of learning is' breathing'. With thinking and analysis, the memory of things to merge, into practical problems and tasks, and then to solve the problem. A complete learning process should at least include thinking, memory[1]. Expression, transmission, and action. The most effective way to breathe is to practice. The action-oriented teaching mode is based on employment, ability, national vocational appraisal standard, learning field of vocational activities, and action-oriented teaching method. And adopt the method of multiple evaluation to evaluate, cultivate the teaching form of skilled talents with comprehensive professional quality. The action-oriented teaching mode can be divided into four parts: one is the driving part, which mainly refers to the teaching goal, which determines the nature and development direction of the whole teaching mode. Second, the affected part, composed of teachers and students, is the focus of the whole teaching model. The third is the support part, which is composed of four elements: teaching content, teaching organization form, teaching method and teaching environment, which plays a guarantee role in the normal operation of the whole teaching. The fourth part is the teaching evaluation part, which monitors and adjusts the whole teaching function, and returns the operation of the teaching to the driving part, so that the whole teaching operation can achieve the purpose of "spiral rise". As shown in figure 1, the organic combination of the above four parts constitutes an action-oriented teaching model[2].

Figure 1. Elements of an action-oriented teaching model.

2. Action-oriented instructional design for railway transport majors

2.1. Establishment of teaching objectives

The goal of action-oriented teaching is to train students to become high-quality and high-skilled talents with special post ability, general industry ability and core ability. The action-oriented teaching goal embodies the teaching view of ability-based vocational education. The aim of the goal is to cultivate students' employability, working ability and post conversion ability: the core of the goal is to cultivate students' comprehensive professional quality, that is, to develop students' talents and to
cultivate people with all-round development. Therefore, the general goal of modern vocational teaching and training in our country is to develop students' professional ability and core ability. The content of this general goal is embodied in vocational training teaching, and it is necessary to realize the students' professional ability knowledge and skills as well as the cultivation requirements of abilities, emotions, attitudes and values[3].

2.1.1. Establishment of comprehensive teaching objectives
The major of railway transportation is to train the skilled personnel of the production, operation and service of the railway line of our country (including the state-owned railway, the local railway, and the railway transportation department of the large-scale factory and mining enterprise) transportation. This major is different from mechanical manufacturing and other industries. After graduation, students are faced with railway vocational posts, which include: signalman, assistant duty officer, station attendant, car number officer (long), shunting chief, station dispatcher, passenger operator, passenger operator, freight forwarder, freight attendant, shunting worker and so on. The first position of student employment is generally shunting, passenger transport, freight, car number, signalling and other junior posts. Therefore, in formulating the teaching objectives of the major, the first position is to be competent for the above jobs after the students are employed. The premise of being competent for these positions is that students should have the corresponding theoretical knowledge and the ability of emotional attitude needed to complete their professional activities in addition to the skills of the position.

2.1.2. Establishment of individual teaching objectives
Action-oriented teaching is based on the task of project teaching. Any product, such as a part, can be regarded as a project D0. as long as it is beneficial to teaching and can promote the development of students' professional ability Therefore, in the teaching, the professional course content of this major is divided into several teaching items, and a number of work tasks are set in each teaching project, and then teaching around the work task[4].

2.2. Teaching strategies
The teaching procedure is the order of the components of the teaching content, which determines "what to teach first and what to teach later ". Sichuan teaching process is also the realization process of teaching goal, and the purpose of vocational education teaching goal is to cultivate students' comprehensive ability. When making teaching procedure, we should follow the principles of students' ability formation process, teaching psychological logic sequence and professional situational logic. "The formation of students' ability in vocational schools, according to the definition of the process of ability in vocational education theory, has a more complex process with many links, each of which has different characteristics ". The specific process is shown in Table 1.

Table 1. Capacity-building portfolio.

| Knowledge learning process | Acquisition, transformation and consolidation, transfer and application |
|---------------------------|------------------------------------------------------------------|
| Formation process of mental skills | Prototype orientation, prototype operation, prototype internalization |
| Operation skill formation process | Orientation, imitation, integration and proficiency |
| Attitude formation process | Obedience, identification, internalization |

The teaching procedure of railway transportation specialty should follow the law of knowledge
learning — skill formation — attitude formation — ability integration. Therefore, the training process of transportation students can be divided into the following three stages.

2.2.1. Students’ basic quality training stage
This stage mainly offers mathematics, English, computer application, professional ethics, practical writing and other courses. It mainly trains students' political quality, legal consciousness, mathematics application ability, foreign language application ability, innovation and entrepreneurship ability, and lays the foundation for the formation of professional ability.

2.2.2. Stage of individual competence formation of students
In this stage, professional courses such as railway rolling stock, railway line and station, railway signal, railway traffic organization, railway freight organization and railway passenger transport organization are mainly offered. Through the teaching of professional courses, students can not only master professional theoretical knowledge, but also train students in practical training bases in schools, so that students have individual skills to engage in all kinds of work in this major. Therefore, in professional teaching, theory teaching and practice teaching must be closely combined, and the corresponding practical training should be carried out immediately after the theoretical knowledge is finished in the classroom. This arrangement of teaching procedures, in professional teaching time will be longer, but conducive to the formation of students' ability.

3. Teaching case based on computer action-oriented teaching model
The railway transportation school I discussed is a higher vocational school with a history of 60 years. The railway transportation specialty has a history of nearly 60 years and is the backbone of our school. For many years, the teaching of this major still adopts the traditional teaching mode basically, the employment-oriented school running guideline only stays on the idea level, the ability-based teaching idea has not been carried out to the whole process of teaching; The teaching strategy is old and the teaching efficiency is low. In this context, two classes were selected as pilot reform.

3.1. Action-oriented instructional design

3.1.1. Teaching objectives
Familiar with single-line semi-automatic block section electrical, centralized interlocking station normal situation to receive train operation.

3.1.2. Teaching content
Normal train operation.

3.1.3. Teaching process
The task-oriented teaching procedure is adopted, the theoretical knowledge is explained first, then the practical operation is carried out, and the theoretical teaching and practical training are organically combined.

3.1.4. Forms of teaching
Use the classroom centralized teaching, watching video, group exercise teaching form.

3.1.5. Teaching scenarios
The train operation procedure training is arranged in the school train drill room and is carried out in a more real professional situation.

3.1.6. Teaching methods
The teaching of theoretical knowledge part adopts classroom teaching method, and practical skill
training teaching adopts the combination of role-playing and simulated teaching method.

3.1.7. Teaching media
Assisted teaching by playing video.

3.1.8. Teaching evaluation
Diversified evaluation methods: teacher evaluation, student evaluation, group evaluation.

3.2. Teaching flow chart

Figure 2. Teaching flow chart.

4. Conclusion
The implementation of action-oriented teaching mode in some students of transportation management major in our school is not only an attempt of teaching reform, but also a promotion of teaching concept. Through this reform, the teachers of this major have further improved their understanding of the law of higher vocational education and strengthened their confidence and determination to carry out the curriculum reform in an all-round and in-depth manner. The transformation of teaching methods has been preliminarily realized, leading students to learn independently and think independently, which is no longer always "taught to fish ", but focuses on" cast in fish ". In teaching, each class has specific learning tasks, evaluation methods, according to special to general to special teaching thinking to carry out integrated teaching of theory and practice, can give play to the advantages of students' thinking characteristics, enhance learning self-confidence, so students' interest in learning and learning initiative have been greatly improved. However, it does not emphasize the integrity of subject knowledge, and the teaching process disturbs the traditional school teaching order. Many aspects are contrary to the traditional teaching management, such as teaching plan, syllabus, textbook selection, teaching log filling and teaching time allocation, all At the same time, the transformation of teaching methods is a great challenge to teachers' teaching ability, and the quality of teachers needs to be further improved.

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