Research on Curriculum Design of Internet of Things Major in Higher Vocational Colleges based on "Integration of courses and Competitions"

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Abstract: Competition course integration mode is a new teaching mode, which combines the traditional competition course mode and integration teaching mode, aiming at improving students' learning effect and ability. Through the introduction and analysis of the existing problems of the competition course integration mode, this paper discusses its application in the course design of "competition course integration" for the Internet of Things major in higher vocational colleges, including the course design objectives, contents, evaluation methods and so on. The research shows that the competition course integration mode has great application potential in higher vocational education, which can effectively improve students' learning interest and learning effect, and promote the improvement of students' comprehensive quality and ability.

Key words: Course competition integration mode; Higher vocational education; Teaching design; Teaching implementation; Teaching evaluation

1. Introduction

With the continuous development and progress of society, the status and role of higher vocational education in our country is paid more and more attention. Higher vocational education cultivates talents with vocational skills and knowledge to meet the needs of professional talents in society. However, there are some problems in the traditional mode of higher vocational education, such as single teaching content, single teaching method and low interest of students. It is necessary to adopt new teaching mode and method to improve teaching quality and effect and solve these problems.

The course competition integration mode is a new type of teaching mode, which combines traditional theory teaching and competition training, aiming at improving students' learning effect and ability. The knowledge and skill requirements in the course standards involved in the course competition integration mode come from the national vocational college skills competition Internet of Things competition standards, and the project carrier comes from the competition project library. The integration of course teaching and competition can not only improve students' learning interest and enthusiasm, but also promote the improvement of students' comprehensive quality and ability.

2. The current problems of "course competition integration"

At present, the main problems in the teaching practice of higher vocational colleges are not integration and unobstructed. The non-integration of course competition is mainly manifested as:

1. Time is not fused. Competition training and classroom teaching are absolutely separated, resulting in competition and classroom teaching confrontation. The students who participate in the competition can only use their spare time for the competition training, which leads to the low enthusiasm of the students. There is also a phenomenon that schools suspend classes to organize competition training.

2. The content is not integrated. One is that the classroom content is completely disconnected from the corresponding skills competition; the other is that the teaching and competition training copy the project content of national and provincial competitions, and the competition concept is not effectively integrated into the curriculum.

3. Teaching methods are not uniform. The "integration of curriculum and competition" course still focuses on theoretical teaching, which is inconsistent with the concept of learning by doing in skill competition. Even if some information-based teaching methods are introduced into the teaching, it is impossible for students to improve their skills in class and competition if they do not get rid of the teaching and learning mode and leave no time for effective training and thinking.

3. "course integration" vocational Internet of Things professional course design

1. Considerations in course design

In designing the objectives and requirements of the Programme, the following aspects need to be considered:

Industry needs: Understand the latest developments and trends in the Internet of Things field, as well as the needs of related enterprises for talents, so as to determine the goals and requirements of the course.

Student background: Consider the background and learning level of students in order to design the course content and difficulty to suit them. For example, if the student already has some grounding in iot, then more in-depth course content can be designed; If the student is a beginner, then start with the basics.

Practical: Lessons should have a degree of practicality that allows students to apply what they have learned to real projects. Therefore, forms such as experiments, projects and competitions should be included in the course design to improve students' practical ability and

innovative ability.

Innovation: The curriculum should encourage students to carry out independent innovation and exploration, and cultivate students' innovation awareness and ability. Therefore, the curriculum design should focus on cultivating students' independent thinking and problem-solving ability.

2. Design the content and methods of the course

Determine the course theme and objectives: First, clarify the course theme and objectives, such as the basics of iot technology, application scenarios, development tools, etc. Secondly, consider the students' actual needs and ability level, ensure that the course content meets their learning objectives and covers the competition objectives in the iot Competition specification of the National Vocational College Skills Competition.

Design the syllabus: The syllabus should include the main content of the course, learning objectives, teaching methods, assessment methods, etc. The syllabus should be clear and clear so that students can understand the structure and content of the course.

Choose teaching materials and resources: Choose the right materials and resources based on the subject matter and objectives of the course. You can choose classic textbooks or the latest technical literature. You can also make use of resources on the Internet, such as video tutorials and online courses.

Design experiments and projects: In order to give students a better grasp of iot technology, some experiments and projects can be designed. These experiments and projects can cover all aspects of the Internet of things, such as the competition content in the iot competition rules of the National Vocational College Skills Competition. At the same time, they can also be combined with practical cases so that students can better understand the application scenarios and technical implementation methods of the Internet of Things.

Introduction of competition: In order to stimulate students' interest and enthusiasm in learning, competition can be introduced. Competitions can be divided into individual and team competitions, and different levels of difficulty can be set to meet the needs of different students. The competition can be conducted online or offline, and experts or companies in the industry can be invited to participate in the judging.

In short, when designing the courses of "course competition integration" mode, it is necessary to comprehensively consider the actual situation and learning objectives of students, select appropriate teaching materials and resources, design reasonable teaching syllabi and experimental projects, and introduce competition links to improve students' learning effect and practical ability.

3. Design the evaluation method of the course

When designing courses in the "curriculum and competition integration" mode, the evaluation method should be different from the traditional teaching mode. Here are some possible ways to evaluate:

Competition grades: A student's learning outcomes and abilities are assessed by linking their performance to competition grades. This can motivate students to work harder and participate in competitions. It can also help teachers better understand how students are learning.

Classroom performance: Students are evaluated by observing how they interact, participate, think and express themselves in class. This kind of evaluation can help teachers find students' problems in time and guide and tutor them in a targeted way.

Project practice: Combining course content with practical projects allows students to test their knowledge and abilities through practice. This allows students to have a deeper understanding of the course content and exercise their practical ability and teamwork spirit.

Comprehensive evaluation: Combine the above several evaluation methods to form a comprehensive evaluation system. This kind of evaluation can comprehensively reflect the students' learning situation and ability level, but also can help teachers better understand the advantages and disadvantages of students, so as to carry out targeted teaching improvement.

No matter what kind of evaluation method is used, it should pay attention to the individual development of students, respect their differences and diversity, encourage them to give full play to their strengths and potential, and lay a solid foundation for future career development.

4. Teaching reform of "Internet of Things Installation and Commissioning" course in higher vocational colleges based on course competition integration

Based on the resources of vocational skills competition, strengthening the course construction of iot installation and commissioning personnel competition can fully reflect the actual needs of the current position of iot installation and commissioning personnel. Therefore, teachers can summarize the skills and professional knowledge needed by iot installers and debuggers by analyzing all aspects of the competition, so as to improve the curriculum, reconstruct the teaching content, improve the teaching mode, enrich the teaching resources and improve the course evaluation.

1. Take competition time as reference to improve the course setting.

The national competition time of the Internet of Things installation and commissioning personnel is in December every year. It is suggested that the course schedule of "Internet of Things installation and commissioning" be set as the second semester, so as to consolidate theoretical knowledge and learn the industry standard operation. Related courses can be continued in the second semester to consolidate previous knowledge and form a closed loop of memory. Sophomore students will be selected as the main contestants, and the school competition will be held at the end of the second semester to select the candidates for the provincial competition. It is suggested to carry out centralized training for the competition in the early part of the third semester to strengthen the coordination of teaching arrangement and competition time. By strengthening the connection between competition and teaching and scientifically setting the teaching time, we can

give full play to the positive guiding role of vocational skills competition in teaching reform, improve classroom efficiency and serve the implementation of "integration of class competition".

2. Restructure the teaching content based on the competition assessment.

It is suggested to scientifically adjust the proportion of class hours between theory and practical training, increase the total class hours to 64 class hours, and increase the proportion of practical training class hours to 3/4. Optimize the teaching content, by introducing the competition resources involved in vocational skills competition, make the content of professional courses more comprehensive, benchmark the content of practical training courses with the operation norms of competition skills, implement the work-oriented thinking concept into the formulation of course standards, and improve the practicability of course content. Reconstructing the teaching content according to the assessment items of vocational skills competition can achieve the goal of highlighting the teaching key points and overcoming the teaching difficulties. By connecting various competition mechanisms, students can be promoted to apply what they learn and integrate knowledge and action to solve the problem of low adaptation between teaching content and post requirements.

3. The teaching mode is driven by competition literacy.

Vocational skills competition tests the players' independent thinking and judgment ability. The competition-driven teaching mode needs to change the traditional teaching mode of "teaching for learning, teaching for learning" and improve students' independent learning ability. Teachers should make full use of modern information technology means, provide vivid and intuitive teaching materials, and improve students' learning interest and enthusiasm. The case teaching model is adopted to stimulate students' enthusiasm for participation through task challenges, guide students to carry out inquiry learning, emphasize the importance of students' independent learning and sense of responsibility, respect students' individual differences, meet individual needs, and achieve ideal teaching results.

4. Based on the content of competition, enrich teaching resources.

In order to achieve an efficient correspondence between course content and the actual work tasks of vocational skills competition and iot installation and commissioning personnel, teachers should deepen cooperation between schools and enterprises, jointly update teaching materials, build practical training and practice bases, and build online high-quality resource courses based on vocational skills competition. Competition training course resources are composed of basic resources and expanded resources, including theoretical teaching materials, operation videos, assessment and evaluation standards, test banks, simulation exercises and industry norms. The basic resources, supported by the results of the competition, can be an effective supplement to classroom teaching and provide necessary resources for students' independent learning. The expanded resources mainly include the latest achievements of the competition, cutting-edge technology and subject progress.

5. Improve course evaluation based on competition scores.

The scoring criteria of vocational skills competition pay attention to comprehensive ability, and teachers should integrate the consciousness of competition into daily teaching. It is suggested that the proportion of process evaluation should be increased to 70 percent and the proportion of final examination should be 30 percent. Course evaluation is carried out on a project-by-project basis, and students' performance is evaluated in detail, so that timely and painful evaluation feedback can inspire, alert and guide students. Improve the course evaluation, from the assessment of "academic performance" to the evaluation of "comprehensive ability", more in line with the vocational education of the Internet of things installation and debugging skills of compound talents training objectives.

5. Conclusion

The course competition integration mode is a new teaching mode, which combines traditional classroom teaching and competition, aiming at improving students' learning effect and ability. It has great application potential in higher vocational education, which can effectively improve students' learning interest and learning effect, and promote students' comprehensive quality and ability. In the aspects of teaching design, teaching implementation and teaching evaluation, attention should be paid to the determination of teaching objectives, the determination of the theme of the competition, the determination of the form of the competition, the determination of teaching resources, the organization of students' groups, the determination of the rules of the competition, the guidance of students' learning, the organization of competition activities, the clarity of evaluation standards, the diversity of evaluation methods and timely feedback. Through the application and research of the integrated mode of competition, it can provide some useful enlightenment and reference for the teaching reform and innovation of higher vocational education.

References

[1] Jing Yan. Teaching Exploration of Network Integrated Cabling Course based on course competition Integration [J]. Chengcai,2022(23):65-66.

[2] Xiaolan Zhou,Dan Zhang. Key elements of the teaching reform of "course match integration" in vocational colleges [J]. Journal of Ezhou University, 2022,29 (06): 78-79.

[3] Xiaoqin Fang. Research on the teaching reform of "Catering Service and Management" under the model of "Course Competition Integration" [J]. Contemporary Tourism, 21,19(30):91-93.