Research on Practical Teaching Assessment System under School-Enterprise Joint Cultivation Model

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Abstract: With the development of the times and social changes, the traditional education model has made it difficult to meet the growing social demand and students' individualized learning needs. To better cultivate high-quality talents adapted to the needs of social development, the mode of joint cultivation between schools and enterprises has emerged. In this mode, schools and enterprises share the responsibility of training students, and through practical teaching, students can better master professional knowledge, skills, and practical abilities. In this paper, we will discuss the practical teaching assessment system under the joint cultivation mode of schools and enterprises, to provide an effective teaching guarantee for the promotion of student's comprehensive development.

1. Introduction

Higher education plays a crucial role in the cultivation of students' abilities, not only as a place for imparting knowledge but also as an important platform for cultivating students' comprehensive abilities and enhancing their literacy [1]. Firstly, through a specialized curriculum and teaching system, higher education helps students establish a systematic knowledge structure, deeply understand the connotations of disciplines, and cultivate solid professionalism. Secondly, higher education emphasizes the cultivation of students' independent learning and innovation abilities, stimulates students' learning interests and creativity through classroom teaching and scientific research practice, and cultivates their problem-solving and innovative thinking abilities [2]. In addition, higher education is also committed to cultivating students' critical thinking and analytical abilities, so that they can be equipped with the ability to identify information, think about problems, and analyze phenomena, to cope with the complex and changing social environment and challenges in the workplace. Finally, higher education focuses on whole-person training, cultivating students' humanistic qualities, moral sentiments, and sense of social responsibility through curriculum and

campus culture construction, so that they can become excellent citizens with a sense of responsibility and mission [3]. In short, higher education plays an indispensable role in the development of students' abilities, injecting strong impetus and vitality into their personal growth and social development.

The traditional mode of higher education often favors theoretical teaching and neglects the cultivation of students' abilities in practice. With the development of society and the change in professional demand, enterprises pay more attention to the practical operation ability and problem-solving ability of employees, which cannot be obtained only through theoretical learning in the classroom [4]. Therefore, practical teaching becomes an important way to cultivate students' comprehensive ability. School-enterprise joint training mode is an important way of practical teaching. Through the close cooperation between schools and enterprises, students have the opportunity to participate in real projects, and internship practice, to better master the knowledge they have learned and cultivate practical ability. However, how to carry out scientific assessments of students' practical teaching has become an urgent problem to be solved.

The practical teaching assessment system is designed to ensure that students receive comprehensive development and comprehensive evaluation in practice. Through reasonable assessment methods and indicators, the knowledge, skills, and abilities acquired by students in practice can be better evaluated, thus providing more effective guidance and support for their personal growth [5]. The establishment of a scientific assessment system for practical teaching helps to improve the quality of teaching, thus cultivating talents who meet the needs of society. Through process assessment, students' deficiencies can be found in time and provide teachers with a reference basis for adjusting teaching contents and training objectives. At the same time, through cooperation with enterprises, we can better understand the actual needs of enterprises, to adjust the teaching content and methods, so that the teaching is closer to the employment needs of enterprises and more adaptable to the development needs of society.

2. Elements of the practical teaching assessment system

2.1. Design of assessment objectives

The first task of the practical teaching assessment system is to clarify the assessment objectives and ensure that the assessment content is consistent with the training objectives. The assessment objectives should include both the teaching requirements of the school and the actual needs of enterprises. At the same time, students are trained in the spirit of science and innovation as well as teamwork, reflecting their comprehensive quality and practical ability. The cultivation requirements of practical assessment include:

1) have a correct outlook on life and values and abide by the professional ethics of engineers.

2) be able to communicate on modern engineering issues and have strong organizational skills.

3) be able to undertake the design, development, and management of practical projects.

The objectives of the practical assessment include:

1) to acquire theoretical knowledge in the relevant field of specialization, and to be able to understand and apply the theoretical knowledge to solve practical engineering problems;

2) master the operational skills required for practice and be able to independently complete practical operational tasks;

3) have the ability to analyze and solve problems, and be able to identify problems encountered in practice and propose solutions;

4) possess innovative thinking and creativity, and be able to propose novel ideas, methods, or solutions;

5) be able to work effectively with team members to accomplish tasks;

6) the ability to synthesize theoretical knowledge, practical skills, and problem-solving abilities to

comprehensively solve complex problems in practice.

The supporting relationship between the practical teaching cultivation requirements and the training objectives is shown in Table 1.

Table 1: The supporting relationship between cultivation requirements and objectives

Assessment objectives	Cultivation requirements 1	Cultivation requirements 2	Cultivation requirements 3
Theoretical knowledge			Strong support
Operational skills		Weak support	Strong support
Solving problems		Strong support	Strong support
Innovative thinking	Strong support		Weak support
Team work	Strong support		Weak support
Practical skills			Strong support

The above objectives are established with the aim of cultivating talents with all-round development in morals, intellect, physique and aesthetics, humanities and social sciences, political and ideological virtues, professional ethics and teamwork spirit. Such talents are able to continuously improve themselves, have solid basic knowledge and specialized field knowledge, and have strong professional ability. More importantly, they are able to engage in engineering planning, design and implementation, application system development, management and maintenance, security and safety in the application field.

2.2. Assessment content design for practical teaching

The assessment content of the practical teaching assessment system should be centered on the assessment requirements and assessment objectives, and comprehensively evaluate the students' learning achievements and ability level in the practical environment, to ensure that they are equipped with the comprehensive qualities needed to cope with future professional challenges [6].

1) The assessment content covers students' mastery of theoretical knowledge in practice. This includes the degree of mastery of the basic concepts, principles, and theoretical models of the relevant field of specialization, as well as the ability to understand and apply this knowledge to solve practical problems. For example, in the practical teaching of electronic engineering, signal processing is an important content, involving the acquisition, processing, and transmission of analog and digital signals. Students need to master various signal processing methods and techniques, such as filtering, modulation and demodulation, sampling and quantization, etc., and be able to use these methods to solve practical signal processing problems, such as designing a digital filter to filter analog signals and extract signal components within a specific frequency range to meet the needs of practical applications.

2) The assessment involves students' practical operation ability. It includes the students' proficiency in practical operation and technology application, and whether they can complete the practical operation tasks accurately and without errors. For example, in the practical teaching of engineering courses, students need to deepen their understanding through practice after learning the structure, principles, and operation methods of various engineering equipment in the classroom, including the process management of the equipment, the use of the operation interface and the writing of programs.

3) The assessment covers students' problem-solving abilities. It includes students' ability to identify and analyze problems in practice, as well as their ability to come up with effective solutions. For example, students need to debug bugs, optimize the system, and maintain security for the designed system. In these scenarios, students need to deeply analyze the root cause of the problem,

identify the key points of the problem, and determine the direction and strategy to solve the problem.

4) The assessment should also address students' ability to innovate. This includes whether students possess innovative thinking and creativity and whether they can put forward novel ideas, methods, or solutions and realize innovation in practice. For example, students may be involved in a research and development project for a new type of equipment, in which they need to analyze and study the composition structure and performance characteristics of the equipment, propose new design solutions, and use the laboratory to prepare the equipment. In this process, students need to put forward innovative design ideas and processes for the characteristics and application needs of the equipment and verify their feasibility and effectiveness through practice.

5) The assessment should also cover students' teamwork ability. In the assessment of teamwork ability, it is important whether students can effectively cooperate with team members, coordinate the division of labor, communicate, and collaborate to complete the task together. Students need to have good communication skills, be able to express their views and ideas clearly and understand and respect the opinions and suggestions of team members. At the same time, students need to have good coordination skills to effectively coordinate the relationship between team members and solve conflicts and problems that may arise in the process of teamwork.

6) The assessment involves the examination of students' comprehensive ability. It includes whether students can comprehensively apply theoretical knowledge, practical skills, and problem-solving abilities to comprehensively solve complex problems in practice and respond flexibly in different practice scenarios. Students need to have a solid theoretical foundation, be proficient in practical skills, and be able to effectively apply the knowledge and skills they have learned to solve practical problems. At the same time, students also need to have good analytical and problem-solving skills, be able to consider problems from a holistic and systematic perspective and propose reasonable and effective solutions.

2.3. Design of appraisal methods

The assessment methods of the practical teaching assessment system should be diversified, including both qualitative and quantitative evaluation, combining the characteristics of practical teaching and the actual performance of the students, and comprehensively evaluating their learning achievements and ability level in the practical environment. Table 2 gives the specific program of practice assessment design.

Table 2: Practical assessment method design

Item	Content
Hands-on	Includes lab work, technology application, project practice
Thesis Examination	Including academic papers, project reports
Achievement demonstration	Evaluate students' problem solving ability and innovation ability
Comprehensive Evaluation of Enterprises	Evaluate students' practical operation ability and adaptability in enterprises
Comprehensive ability assessment	Including classroom discussion, oral defense, practical skills competition

Taken together, the assessment method of the practical teaching assessment system should be flexible, taking into account the hands-on nature of practical teaching, but also taking into account the personalized needs of students, to ensure that the assessment results are objective accurate, comprehensive, and fair.

3. Implementation path of practical teaching assessment system

3.1. Integration of teaching resources

By integrating teaching resources inside and outside the school, the demand for practical teaching can be maximized and the teaching effect and quality can be improved. Schools can integrate on-campus teaching resources, including teacher teams, laboratory facilities, teaching equipment, etc., to ensure the smooth implementation of practical teaching activities. Schools can also cooperate with enterprises and integrate their practice resources, including production equipment, practice programs, internship opportunities, etc., to provide students with a richer and more realistic practice environment. At the same time, schools can also utilize the Internet and information technology means to integrate a variety of online resources, such as teaching videos, online courses, online experiments, etc., to provide students with flexible and diverse learning methods and approaches. Through the full integration of teaching resources, the quality and effect of practical teaching can be effectively improved, and the overall development and ability of students can be promoted.

3.2. Faculty development

An excellent teaching team is the key to guaranteeing the quality and effectiveness of practical teaching. Firstly, the professional level and teaching ability of teachers are improved by organizing professional and technical training, training in teaching methods, and seminars on teaching philosophy. Secondly, through the establishment of a scientific and reasonable evaluation system and reward and punishment mechanism, teachers' enthusiasm and creativity are stimulated, and teachers are encouraged to actively participate in practice teaching activities. At the same time, this mechanism pays attention to teachers' personal development and career planning, provides teachers with a favorable growth environment and development opportunities, and attracts outstanding talents to join the practice teaching team. Through the above measures, we can establish a team of teachers with excellent quality, business proficiency, and high teaching level, which can provide a strong guarantee for the smooth development and effective implementation of practice teaching.

3.3. Construction of practice bases

Schools should pay full attention to the construction of practice bases to provide students with good practice environments and conditions. First of all, schools need to cooperate with enterprises, research institutes, and so on to establish practice bases to meet the needs of students' practical teaching. These practice bases can be the production workshops, laboratories, scientific research centers, etc. of the enterprises, or the laboratories, studios, training bases, etc. built by the school itself. Secondly, the school should ensure that the practice bases are well equipped with facilities and equipment, including experimental equipment, tools and materials, information technology equipment, and so on. These facilities and equipment should be able to meet the needs of students' practical teaching activities and guarantee that students can complete their practical tasks. At the same time, the school should also pay attention to the safety of the practice base, establish a sound safety management system and operating procedures to ensure the safety of students in the practice process, should strengthen the management and maintenance of the practice base, regular inspection and maintenance of the practice base, to maintain the facilities and equipment in good condition. In addition, schools can also utilize the Internet and information technology means to build virtual practice bases, provide students with online practice teaching resources and platforms, and expand the form and content of practice teaching.

3.4. Teaching Quality Monitoring and Evaluation

Teaching quality monitoring and assessment is an important part of the implementation process of the practical teaching assessment system, which plays a vital role in ensuring the quality and effectiveness of teaching. Quality monitoring supervises and inspects all aspects of practical teaching activities to ensure the normal operation of the teaching process. The monitoring content includes the implementation of the teaching plan, the utilization of teaching resources, and the organization and management of the teaching process. Through the establishment of the monitoring mechanism, problems and difficulties in the teaching process can be discovered and solved in time, and the teaching effect and quality can be improved.

Quality assessment makes an objective and comprehensive evaluation and analysis of the results and effects of practical teaching activities to find out the problems, summarize the experience, and improve the methods. The assessment includes students' learning performance, learning attitude, ability level, etc., as well as teachers' teaching level, teaching methods, teaching effects, etc. Through the establishment of the assessment system, the teaching process and effect can be evaluated scientifically, providing the basis and reference for teaching reform and optimization, and promoting the improvement of teaching quality and effect.

In quality monitoring and assessment, the following aspects should be paid attention to: firstly, establish a scientific and reasonable monitoring and assessment index system, clarify the objects, contents, and standards of monitoring and assessment, and ensure that the evaluation results are objective and accurate. Secondly, a variety of means and methods are used for monitoring and assessment, including questionnaire surveys, student assignments, teaching observation, student performance evaluation, etc., to comprehensively consider all aspects of teaching activities and fully grasp the quality and effectiveness of teaching. Lastly, it pays attention to the timely feedback and application of the results of monitoring and evaluation, finds problems in time and takes measures to improve them, constantly optimizes the teaching process and methods, and improves the effectiveness and quality of teaching.

3.5. Continuous optimization and improvement

The practical teaching assessment system is a dynamic process that requires continuous optimization and improvement. Each specialty needs to establish a sound feedback mechanism to collect and analyze feedback information opinions and suggestions in the teaching process promptly and identify problems and deficiencies. They also need to formulate specific improvement measures and action plans based on the feedback information and analysis results, to solve problems and improve teaching methods in a targeted manner. At the same time, there is a need to strengthen teacher training and development to enhance teachers' professionalism and teaching ability and to provide strong support for teaching improvement. In addition, it is also necessary to strengthen internal and external exchanges and cooperation, learn from the advanced experience and practices of other schools and enterprises, and constantly expand and innovate the modes and methods of practical teaching.

4. Conclusions

The practical teaching assessment system under the joint cultivation mode of school enterprise is an important initiative of educational reform and innovation, and its construction and implementation are of great significance for promoting the overall development of students and improving the quality of teaching. By clarifying the assessment objectives, designing diversified assessment contents and methods, as well as strengthening the integration of teaching resources and quality monitoring, it can

better promote the cooperation between schools and enterprises and cultivate high-quality talents in line with the needs of society.

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