

Construction of Project-based Teaching Evaluation Index System for Computer Courses in Secondary Vocational Schools

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Abstract

Nowadays, all secondary vocational colleges across the country are constantly advancing the curriculum reform. The project-oriented curriculum model oriented by the work process is the basic direction of the current secondary vocational curriculum reform. Project teaching method is project-centered, emphasizing that students actively participate in the design and implementation of courses, with the purpose of improving students' ability to solve practical problems. Because the application of each subject of the project-based curriculum is still in the stage of exploration and development, especially the evaluation of the implementation of the computer project-based curriculum is still in the research stage. Therefore, in the specific practice of project-based curriculum teaching reform, in the implementation of secondary vocational computer project-based curriculum teaching, it is necessary to establish an effective evaluation index system suitable for secondary vocational computer project-based curriculum teaching rules, and give full play to the evaluation mechanism in the entire curriculum implementation process. In the guiding role. This article takes the "Advanced Office Software Application" course offered by secondary vocational colleges as an example to clarify in detail the construction of the evaluation index system of computer project-based teaching in secondary vocational schools.

Keywords

Secondary vocational computer; Project-based teaching; Teaching evaluation index; System construction.

1. Introduction to Project-based Teaching Method

Project teaching is a teaching mode that allows students to choose topics and research tasks independently, and study independently. [1] The project teaching method is based on experiential learning and constructivist learning, emphasizing the main body status of students in the whole learning process. [2] Students gain knowledge and skills and improve their ability to solve different problems in the design and implementation of teaching independently. The implementation of its teaching method has the following conditions:

(1) the course content can be broken down into projects. Not all courses are applicable to the project teaching method, and the principle of course decomposability should be followed in the selection of course content. At the same time, a clear and clear task description is required for the completed project work, and each step can be explained clearly. In the end, the results of the project also have a certain practical guiding significance or practical application value, which is closely related to the work and life of the students.

(2) the project content structure is scientific and systematic. Scientificity means that the content structure design of the project must conform to the law of the recent development area of secondary vocational students. [3] The task must be set to a certain degree of difficulty, not simply repeat the existing knowledge, but also to ensure that the students' interest in learning is mobilized so Students actively increase their knowledge and skills as well as their ability to

solve practical problems. Systematicness means that the structure of each part of the project is interconnected, the levels are clear, and the overall structure of the project is complete and systematic. This is not only conducive to the setting of teachers' teaching goals, but also conducive to students' overall grasp of the curriculum.

(3) the progress of the project leaves room for the students. The learning of the project curriculum is student-centered, and students can design and implement projects independently. After leaving students with independent space, students participating in project design will help students think. Teachers should pay attention to students in the process of project implementation when designing courses. For the difficulties and problems encountered, set key indicators and conduct scientific evaluations. [4]

2. Principles for the Construction of the Project-based Teaching Method Evaluation System

The purpose of teaching is for school teachers to provide students with different ways, resources and methods of learning as much as possible, under which students can acquire knowledge and skills to develop. [5] In project-based curriculum teaching, the concept of "student-oriented" should be fully reflected, and a project-based teaching evaluation system that conforms to the law of student learning and development should be constructed. [6] The following principles must be followed when applying project-based teaching evaluation.

2.1. The Principle of Diversification of Evaluation Subjects

The evaluation process should emphasize the diversity of evaluation subjects, and the evaluation methods include self-evaluation and mutual evaluation. The main body of the evaluation is related to the evaluation environment. It can be a project evaluation form for teachers, students, and computer courses. The evaluation includes teachers, students, and group students.

2.2. The Principle of Diversification of Evaluation Content

The diversification of evaluation content refers to the comprehensive evaluation from different content perspectives. Therefore, the evaluation content of project-based teaching includes basic knowledge evaluation, basic skills evaluation, application ability evaluation, team cooperation evaluation and comprehensive professional ability evaluation, which can be examined in a more comprehensive and detailed manner. [7]

(1) Evaluation of basic knowledge. Basic knowledge evaluation is the difficulty of evaluation in project teaching. The requirements must not be too high, otherwise it will cause a large area of disqualification, which will greatly affect the students' learning initiative and enthusiasm; the requirements must not be too low, and the students must be promoted as much as possible. [8] Evaluation can adopt the strategy of establishing a hierarchical objective question bank, and classify and evaluate students according to different learning stages.

(2) Evaluation of basic skills. According to a certain project given by the teacher in teaching, after completing the project product according to the technological requirements, write down the skill improvement points on this basis. [9] The qualitative evaluation of students' operations is the focus, including evaluating the standardization, speed and accuracy of students' operations in the project. Therefore, it is necessary not only to evaluate students at different stages and collect data, but also to have a complete evaluation process to show how much the students' skills have improved.

(3) Evaluation of practical ability. Practical ability evaluation refers to evaluating students' ability to solve practical problems and judging whether students can apply the knowledge and skills they have learned to practice. [10] Since practical ability is one of the important goals of project teaching, the evaluation of students' practical ability can be carried out in different

stages of learning. In the evaluation process of multiple subjects, it provides opportunities for students to communicate with each other and learn, so that students can make progress together, and promote students to maximize their potential. This is the ultimate goal of practical ability evaluation. [11]

(4) Evaluation of teamwork. A sense of teamwork is very important. Students must develop their team spirit in project activities. For example, a teacher organizes a group competition. The rule of the competition is that each group chooses one of the best students to represent the competition, and at the same time chooses one of the other students who thinks the worst to also participate in the competition. This rule makes the stronger students in each group take the initiative to help the weaker to complete the contest, which reflects the relationship between mutual evaluation and mutual help.

(5) Comprehensive professional ability evaluation. The evaluation adopts a combination of formative evaluation and summative evaluation. Formative evaluation is also called process evaluation, and summative evaluation is also called summative evaluation. The evaluation objects include students, school partners, teachers, and companies. The scope of the assessment includes students' knowledge and skills, professional abilities, and comprehensive qualities. The answers and results of the comprehensive evaluation can be different. To give students understanding and support to the greatest extent, we must not only pay attention to the results of students' comprehensive application ability evaluation, but also pay attention to the effect of the evaluation process to encourage students to improve their comprehensive application ability.

2.3. The Principle of Diversification of Evaluation Methods

The evaluation of project-based teaching should be diversified in all aspects of evaluation content, subject and method, and should focus on the formation of students' abilities in project activities. The subject of evaluation is linked to the context of evaluation, emphasizing the diversity of evaluation subjects and the diversification of evaluation information. Self-evaluation and mutual evaluation can effectively help students improve, and the subject of evaluation can include teachers, students, managers and internship units. Expand the main body of evaluation, and adopt a variety of evaluation methods such as enterprise and society's evaluation of students, student self-evaluation, and teacher-student mutual evaluation.

(1) Teachers evaluate students. In teaching, teachers should base on project tasks, respect individual differences of students, and make appropriate evaluations for different individuals in terms of students' learning motivation, emotions, attitudes, self-confidence, innovative consciousness, thinking methods, and ability development. Give timely praise to students who perform well and make progress; for those with learning difficulties, try to find their shining points and tap their potential, while patiently and euphemistically point out their deficiencies; for outstanding students, the evaluation should be done well, appropriately motivated and motivated. Without making them proud, teacher evaluation can cultivate students' initiative and self-confidence, and make students feel successful.

(2) Students evaluate each other. Students are the main body of the whole learning process. Through mutual evaluation between students and students, students' enthusiasm for learning can be well mobilized. Create a good learning atmosphere in which students compete and encourage each other, and cultivate the spirit of fairness, objectivity, and the courage to face reality. Inform students to be fair, impartial, and objective in mutual evaluation, and not to distort facts due to close relationships between classmates. Evaluation by a third party (student assessment) of their language expression ability, knowledge absorption degree, emotional value attitude, etc. Through mutual evaluation, students can form a good atmosphere of helping each other, appreciating each other, and promoting each other.

(3) Students' self-evaluation. Cognitive psychology research shows that self-evaluation

constitutes the main component of metacognition. Students' objective and correct evaluation of themselves plays a very important role in students' self-development, and has a profound impact on their lives. The reform of the evaluation mechanism can allow students to deeply understand themselves and lead them to objectively and truthfully evaluate their own learning goals, attitudes, ability to behave in the world, and ideological qualities, so as to achieve self-motivation and self-education, thereby achieving self-improvement and self-development The goal.

(4) Enterprise evaluation. The company's evaluation of students' convincing power is stronger, and it can also be a good measure of the quality of the school. School-enterprise cooperation, the school regularly invites relevant companies to participate in project evaluations, module evaluations, or to demonstrate student skills to companies through skills festivals, competitions, report performances, etc., to win the recognition of the company; at the same time, the performance of students during the work internship and Achievement is regarded as an evaluation index for evaluating student performance, and as an important basis for recommending student employment.

(5) Social evaluation. Social evaluation is to regard students' job abilities after entering the society as the goal, and focus on the joint development of students' job knowledge, skills and comprehensive qualities. According to the requirements of the talent training plan, the students of secondary vocational computer majors will conduct vocational qualification appraisal based on the requirements of the software professional qualification certificate, and obtain the software professional qualification certificate issued by the national department, so as to effectively combine the academic certificate with the professional qualification certificate.

2.4. The Principle of Operability

In order to make an objective and correct evaluation of teaching quality, it is necessary to construct an evaluation system that conforms to the characteristics of vocational education. Evaluation content and evaluation indicators need to have a certain height, which can objectively and effectively measure the quality of teaching. The evaluation system of student academic achievement must be practical, that is, operable. In addition, the reliability, difficulty, and efficiency must be well grasped. The entire evaluation process should not be too complicated, but should be concise and practical.

2.5. Incentive and Developmental Principles

The evaluation structure advocated by project-based teaching is to ensure that each student's personality is fully developed. On the one hand, it not only affirms the value of students' research study and creative work, and evaluates the progress made by students, so that every student gets a good Development, which in turn generates motivation for effort. On the other hand, through evaluation, students can have a clear understanding of themselves and make their personalities develop more comprehensively and harmoniously in continuous evaluation. The evaluation process is the evaluation and testing process of students' learning status and effects. Based on the above principles of project-based teaching method evaluation system construction, the basic framework of project-based teaching evaluation is shown in Table 1.

Table 1. Project evaluation form of the course "Advanced Office Software Application"

Evaluation index		Pass	good	excellent	Evaluation form	Evaluation subject	Evaluation score
Basic knowledge (20 points)	Familiar with the use of the basic toolbar in Word in Office software (4 points)	Can barely answer about 70% of the questions within the specified time, and the expression is not standardized	Can give a more accurate answer to about 80% of the questions within the specified time, and the expression is more standardized	Can answer about 95% of the questions accurately within the specified time, with concise and clear expressions	Test Questions	Teacher evaluation	
	Familiar with the basic toolbar in Excel in Office software and the use of common formulas (4 points)						
	Familiar with the use of basic toolbars in PowerPoint in Office software (4 points)						
Project skills (30)	Office software installation and understanding (4 points)	Complete 70% of the tasks independently within the specified time, barely complete all operations through reminders, the operations are not proficient	The operation is more proficient and the accuracy rate is higher	Skilled and able to choose efficient methods to achieve all tasks	Actual operation	Self-evaluation	20%
	Use word to manipulate documents and process different types of documents (8 points)						
	Use excel to process the table and calculate the formula (9 points)						30%
	Design slides with PPT and add different playback effects (9 points)						50%
team cooperation ability (20 points)	Contribution to the group (6 points)	Willing to participate in group discussions and make suggestions	Take the initiative to participate in group discussions and make suggestions	Participate in group discussions very proactively and make constructive suggestions	Personal statement	Teacher evaluation	20%
	The degree of collaboration with others (6 points)	Cooperate with members of the group to complete project tasks, have basic organizational and coordination capabilities, but cannot accommodate different opinions	Exchange opinions with group members frequently, have the ability to organize and coordinate, be able to help group members, and be able to accept different opinions	Have good teamwork and organization and coordination skills, take the initiative to help group members, encourage group members to establish a good communication culture, so that each group member has the opportunity to express opinions			30%
	Performance of tasks (8 points)	Not actively participating in group work, but still able to complete the assigned tasks	Actively participate in group work and cooperate with other team members	Cooperate with other team members and assist others in completing their assigned tasks			Teacher evaluation
Comprehensive professional ability (30 points)	Time management ability (10 points)	The assigned tasks can only be completed before the expiration of the	Often able to voluntarily complete assigned tasks before deadlines	Most of the time spontaneously complete the specified tasks before the	Actual operation	Self-evaluation	50%
						Teacher evaluation	50%

		deadline after being urged by the teacher		deadline, and can properly allocate time to complete all tasks in stages			
	Communication and reporting ability (20 points)	Use professional language to display the project results, the problem expression is not clear, the design is unreasonable, and the content is not sufficient	Can better display project results in professional language, and the project design is more reasonable and representative The description is clearer and the content is more substantial	Able to fluently display project results in professional language, with reasonable project design, clear presentation, concise language, and substantial content	Report presentation	Mutual evaluation within the group	30%
Mutual evaluation						30%	
Teacher evaluation						40%	

3. Constructing A Project-based Teaching Evaluation Index System

The evaluation index system truly reflects all or part of the characteristics of the evaluation object, and it can accurately reflect the scientific evaluation results of things. The project teaching evaluation index (see Table 2) constructed in this paper is based on the teaching quality evaluation system and practical teaching evaluation index system, based on the design principles of science, system, and operability, according to the course "Advanced Office Software Application" The teaching syllabus and the teaching design and practice of secondary vocational computer courses, the evaluation indicators of the course project teaching are divided into the following three modules: project design, process control and achievement evaluation, and each module is also subdivided into various secondary indicators. The Analytic Hierarchy Process (AHP) is a commonly used method of weight determination. Its essence is a way of decision-making thinking. It treats the complex problems that need to be solved as a system, and decomposes these decision-related elements into the target layer and the criterion layer. On this basis, experts are invited to compare the elements of each level in pairs, and evaluate the relative importance of the elements at each level before assigning weights.

Table 2. The project teaching evaluation index system

Target layer	First level indicator	Secondary indicator	Three-level indicators	Weights
Project teaching quality evaluation	Project Design	Course Design Content selection Teaching resources provided	Is the project teaching design scientific	0.027
			The degree of closeness between project instructional design and application trends	0.016
			The degree of systemicity of project instructional design	0.023
			Is the schedule design of the project teaching design reasonable?	0.035
			The degree of openness of the project teaching content	0.018
			Targeted teaching content of the project	0.012
			Design of knowledge points in project teaching content	0.029
			Matching degree of theory and practice in project teaching	0.021
			Teacher-student ratio of project teaching	0.042
			Provision of teaching resources for project teaching	0.033
	Process control	project management Project quality monitoring	Provide data resources for project teaching	0.031
			The impact of setting fixed modules on project quality	0.028
			The impact of setting key nodes on project quality	0.034
			Student Evaluation of Teaching	0.044
			Teacher self-evaluation	0.039
			Supervisory review	0.028
	Outcome evaluation	Completion of evaluation Ability development evaluation	Project goal completion	0.027
			Student engagement	0.037
			Performance indicators	0.038
			Professional competence evaluation	0.042
Innovation ability evaluation			0.035	
		Collaboration can be evaluated	0.036	

4. Summary

This article uses the analytic hierarchy process to study the project-based teaching evaluation system and establishes an evaluation index system. The teaching evaluation index system is an important part of the teaching reform of secondary vocational courses. The authenticity of evaluation is the core of a people-oriented evaluation concept and evaluation method. It has special value in the practice of secondary vocational education. The teaching reform of enriching and improving secondary vocational computers is undoubtedly of positive significance. Appropriate evaluation in teaching can help teachers understand the teaching effect of the classroom and the progress of students' learning, and it is also convenient for teachers to reflect and improve teaching, and improve the quality of classroom education. The evaluation system is objective and true, combined with reality, not only is the evaluation content diversified, but also the evaluation objectives are diversified. At the same time, it also integrates the participation of enterprises into the process of teaching evaluation, which provides a reference for the development of secondary vocational and technical education in my country.

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