

Research on the Application of SPOC+BOPPPS Teaching Mode in Higher Vocational Education--Taking the Course of“Computer Network Technology”as an Example

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Abstract: In order to meet the integrated teaching needs of online and offline, the BOPPPS model is integrated with the small private online course (SPOC) teaching model, forming the SPOC+BOPPPS teaching model. This kind of teaching mode is a small classroom with admittance requirements and with class as the unit, which adopts a teaching method combining of online and offline. And its teaching process is divided into six parts (BOPPPS): 1. Bridge-in, 2. Objective/Outcome, 3. Pre-assessment, 4. Participatory Learning, 5. Post-assessment, 6. Summary. This model is tested in the course of computer network technology. According to the test results, it is found: This model can make full use of information means to realize the coordination of online and offline teaching, meet the needs of higher vocational education for course teaching, and improve teaching quality and teaching effect.

Keywords: SPOC+BOPPPS; Teaching Mode; Higher Vocational Teaching; Application

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With the rapid development of the Internet era, the teaching method combining of online and offline has come into people's vision. The SPOC teaching model is based on the MOOC, China is the first to introduce this method into the teaching of“Cloud Computing and Software Engineering”at Tsinghua University, and which has achieved good application results^[1]. The SPOC teaching model has been promoted and developed worldwide, and has become relatively mature after more than ten years of practice and research, but there is still room for expansion in the application of higher vocational education. Based on the teaching characteristics and content of higher vocational education, in order to obtain better teaching effect in the process of using SPOC teaching mode, the author adds another teaching mode on the basis of SPOC teaching mode, combines the two teaching modes, and carries out teaching research and application.

Construction of teaching mode based on SPOC+BOPPPS

Higher vocational teaching is based on the application of SPOC teaching model and the introduction of BOPPPS teaching model, which is constructed according to the sociological concept and constructivist teaching thought. In general, students can keep their attention for about 15 minutes in class learning so the teaching content can be divided into six 15-minute small units, and each unit can be combined to form a thread of“connecting link”^[3]. The six initials stand for the six stages: B refers to Bridge-in (introduction to start class); O refers to Objective (setting classroom learning objectives and expected results), teachers explain the learning objectives in a concise and comprehensive way, and conveys the key and difficult points of the course clearly, so that students can clearly grasp their learning direction; P refers to Pre-assessment (pre-assessment or test before teaching), through some simple multiple choice questions, homework, questionnaire, etc., teachers can understand students' knowledge base and their understanding of the content to be taught in class, and adjust their teaching ideas according to the course objectives and students' actual conditions; P refers to Participatory Learning (participatory learning between teachers and students), through interaction between teachers and students, in-

teractive learning of course content can be achieved. P refers to Post-assessment (after-school test), teachers use targeted tests to test students' learning situation, so as to determine whether students' achievements in this class meet the expected teaching purpose. S refers to a summary (class summary), teachers make a brief summary of knowledge points and key points in the classroom, organize and review the teaching content, and further consolidate the learning objectives^[4].

In this paper, SPOC and BOPPPS are combined and applied in the teaching process of higher vocational education. This kind of teaching mode is built, which adopts a small classroom with admittance requirements and with class as the unit, adopts a teaching method combining of online and offline, divides the classroom teaching into six parts in the teaching process and uses BOPPPS model.

This teaching model divides classroom teaching into two parts: online and offline, as follows:

1.1 Online Section

The online part mainly completes three teaching steps: Bridge-in, Objective, Pre-assessment. For online assignments, the Super Star Learning APP is used as the main learning platform. On the Super Star platform, teachers can provide students with relevant learning resources, supervise students' login, browsing and homework completion, and master students' login times and browsing time, so as to evaluate students' learning interest, learning engagement and learning effect.

1.1.1 Bridge-in

This section mainly introduces the background of the knowledge points to be mastered in this lesson, their position in this course, and relevant information related to the previous section through articles, videos, PPTs, etc., so that students can quickly understand. It is also a part of learning background knowledge.

1.1.2 Objective

This section mainly aims to clarify the learning objectives of this lesson and explain and analyze the key and difficult points. During the teaching process, based on the knowledge content and students' acceptance level, the learning content can be displayed to students through computer screen recording or animation production, so that students can intuitively understand the key and difficult points of this lesson. In each lesson, the explanation of key and difficult points should not exceed 15 minutes.

1.1.3 Pre-assessment

The purpose of pre-assessment is to find out how well the students understand the content of the class before taking it online, so that the teaching can be targeted. The specific approach is to complete approximately 10 exercises after students have completed their understanding of the key points, difficulties, and background knowledge. The teacher will have a rough understanding of students' learning level based on their accuracy in answering the questions and their login before class, so as to arrange teaching tasks in a targeted manner and improve students' learning efficiency.

1.2 Offline Section

1.2.1 Participatory Learning

On the basis of the systematization of the work process and the requirements of constructivist education in higher vocational schools, offline courses are mainly operated by students. Teachers transform the typical work tasks into learning tasks with professional background, and integrate the key points and difficulties with the learning tasks. Teachers can also set different lengths of time for students to complete their learning tasks. Teachers can also assign some learning tasks in the form of small groups. In classroom teaching, the teacher is the organizer and the leader of the task.

1.2.2 Post-assessment

According to the needs of classroom tasks, homework detection is divided into individual homework and group homework. If it is a personal learning task, in the homework presentation section, the teacher will select one student from each group. And let them use classroom management software to demonstrate their task completion results on a projector and explain how to complete it. If it is the work of each group, the members of each group usually send a representative to demonstrate and explain after consultation, and other members of the group can also supplement when necessary. Homework inspection can achieve two purposes: the first is to let the teacher clearly understand the students' mastery of knowledge, and then determine the progress and arrangement of the follow-up course; The second is to strengthen the division of labor and unity of members through group cooperation.

1.2.3 Summary

After the Post-assessment, the teacher spent about 10 minutes to evaluate and summarize this lesson: Firstly, summarize the key points and difficulties of this lesson; Secondly, further explain the knowledge that some students have not mastered well. Thirdly, comment on the presentation of students' homework, the teacher gives encouragement to those students and groups who have done well, and points out the areas where they have done well, and points out the areas where they need to improve for those students and groups who have not done well.

Implementation of SPOC+BOPPPS teaching mode in computer network technology course

Computer network technology(vocational college)is a compulsory course for vocational college students.Under the traditional teaching mode,every student accepts the same teaching content,and there is little interaction between teachers and students,resulting in students'poor understanding of the basic knowledge of computer application.This paper uses SPOC+BOPPPS teaching mode to design the course of computer network technology.

2.1 Pre-analysis

In the pre-analysis,the author focuses on understanding students'grasp of basic knowledge of computer network technology and their expectations and requirements for basic computer courses.The questionnaire before Learning on SPOC+BOPPPS teaching mode of Computer network Technology was issued.

2.2 Course Design

The course design needs to be combined with the survey results of the questionnaire.According to the statistics and summary of the questionnaire,73.7%of the students have learned about computer network technology in the previous learning stage,81.82%of the students can operate basic computer applications,72.08%of the students can perform basic operations on hardware installation,and 62.34%of the students can perform basic operations on network system settings.

2.3 Process Design and Practice

Strengthen the interaction between teachers and students in the design of the course process.Firstly,the teacher analyzes the students'learning situation on the platform and the test questions they submitted,summarizes key and difficult questions,and answers students'questions.Secondly,after students have mastered certain basic knowledge,teachers can assign them some difficult assignments at different levels,such as website development.Students can also communicate and discuss with each other to deepen their understanding of computer network technology knowledge.

2.4 Post-evaluation

Statistics and summary results of the questionnaire after learning show that 85%of the surveyed students said that the teaching effect,content and form of the SPOC+BOPPPS teaching mode were well arranged,72%of the surveyed students said that the teaching mode of communication and discussion was very good,and 91%of the surveyed students hoped to use the SPOC+BOPPPS teaching mode in their future learning courses.It can be seen that the computer network technology course designed under the SPOC+BOPPPS teaching mode has been recognized by most students and can continue to explore and apply in the future teaching process.

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