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Application Practice of Student-centered Participatory Hybrid Teaching Design in Basic Computer Courses

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Abstract: Various online platforms in various forms provide learners with rich and diverse knowledge resources. This article explores student-centered participatory teaching design and application practice. This article is based on the application of learning platform and Tencent Conference and other software in the teaching practice of basic computer courses, and constructs and implements the 4F dynamic guided reflection method based on the BOPPPS teaching model. Mixed teaching model, practical application of teaching activity design analyzes the student- centered participatory teaching model based on the BOPPPS teaching model combined with the 4F dynamic guidance and reflection method, which can not only achieve people-oriented and truly participatory teaching, but also touch students ' emotions. Subjective initiative, always use problem-oriented teaching methods to guide learners to explore, and cultivate students' active participatory learning teaching model design and application practice.

Keywords: BOPPPS Teaching; Blended Teaching; 4F Dynamic Guidance and Reflection Method; Computer Basics Course.

1. Introduction

The current era is the highlight of the rapid development of new technologies and information technology such as artificial intelligence, big data, cloud computing, 5G, etc., which naturally leads to the rapid development of information-based teaching, especially the discussion of education and teaching methods for basic computer courses. Large-scale online teaching driven by emerging artificial intelligence technologies has greatly improved learners' learning flexibility and autonomy. The teaching concepts, forms, contents, and talent training methods of college education have undergone leaps and bounds of change and innovation. Various teaching models are emerging in response to the changes of the times, among which hybrid teaching has been widely concerned by the education community. Blended teaching is what was previously called offline hybrid teaching based on online and face-to-face classrooms. It also includes online hybrid teaching that uses diversified online teaching platforms to deploy teaching resources, carry out teaching activities, and combine diversified teaching tools to support teaching reasonably and fully. services, blending a variety of teaching methods.

In today's era, it is worthy of every education researcher and university administrator to truly break through the various limitations of traditional classrooms, take advantage of the situation, transform teaching and learning methods, and truly realize flexible teaching that is centered on student development and is precise and personalized. thinking. This article discusses the teaching method of the hybrid teaching model based on the 4F dynamic guidance and reflection method embedded in the BOPPPS teaching model. It focuses on having a closed-loop teaching method that emphasizes student-centeredness, students' all-round participation in learning, and real-time communication and feedback. It is popular in the education circle. highly appreciated.

2. Construction of Student-centered Participatory Hybrid Teaching Design

This article is a student-centered participatory hybrid teaching design that relies on the B OPPPS teaching model. The BOPPPS model was first created in 1976 by Douglas Kerr of the University of British Columbia in Canada. As an effective instructional design model with participatory learning and immediate feedback as its core, it is deeply loved in Canada and even in Canada due to its clear, concise, and easy-to-operate characteristics. It is highly recommended by teacher skills training centers at all levels and types of schools in many countries around the world [1]. The purpose of the BOPPPS teaching model is to conduct concentrated and intensive teaching practice training in a short period of time to achieve the goal of improving teachers' teaching skills [2]

The application practice of this study explores the integration of the advantages of the hybrid teaching model that combines the BOPPPS model with the 4F dynamic guidance and reflection method, and constructs a student-centered participatory teaching design and application practice. The early construction includes three main parts: the establishment of platform courses, the preparation stage of teaching design, and the design and import of course-related data. Use Xuedutong platform, Tencent Conference, Super Star Live and other software to build a hybrid teaching model. Before teaching design, deploy teaching activities, import teaching resources and relevant student information, and pave the way for all data required for teaching design.

This study focuses on the establishment and design of basic computer courses based on the Xuedutong platform. It reasonably analyzes and displays teaching content according to the school's talent training plan. Teachers display the teaching content and resources of basic computer courses on the platform, and design teaching based on different chapter contents of basic computer courses. Activities, combined with

teaching courseware, exercises, micro-videos and other resources displayed on different teaching platforms in each chapter, and rationally designing and publishing teaching activities based on students' own characteristics. Track and record students' learning process to assess and evaluate students based on the Xuedutong platform.

3. Practice of Student-centered Participatory Hybrid Teaching Design

The teaching design of this article is based on the BOPPPS teaching model 's participatory learning method. The mixed teaching model with the 4F dynamic guidance and reflection method embedded in it can provide a design idea with efficient results, concise steps, and clear goals. The teaching model of this study focuses on a teacher-guided, student-centered, loop-closed hybrid teaching model that emphasizes student participation and timely feedback communication. The following is an analysis and summary of the six stages of the BOPPPS hybrid teaching model, as shown in Figure 1 below.

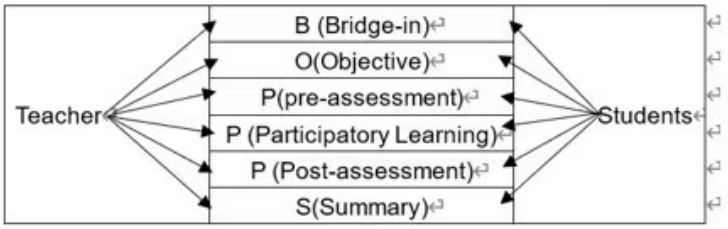

Fig 1. Hybrid Teaching mode

B (Bridge-in) import (introduction). The main purpose of introduction is to stimulate students' interest in learning and generate motivation for learning by introducing teaching content or knowledge related to the teaching content. Importing the design link is very important. Teachers design different introductions based on the different content of computer basic course chapters. Guide students into new teaching content through wonderful introductions, arouse students' desire to explore and seek knowledge, and then stimulate students ' inner motivation for independent learning. In this link, teachers should start from students' points of interest, such as chapters on big data, Internet of Things, and cloud computing in basic computer courses. First, share videos about the Internet of Things, videos showing the applications of big data and cloud computing in daily life, and pass the ultimate goal of sharing video cases is to guide students to learn and think deeply. Depending on the content of each chapter, you can share pictures to inspire display, mini-games, etc. to design and import.

O(Objective) goal (purpose). The goals here can also be understood as teaching goals, and this stage is a crucial link. The clear course objectives, chapter objectives, and classroom objectives of this course in the basic computer course are very beneficial to teachers and students. The teaching process, the learning process and the teaching and learning process will be goal-oriented and will be conducted around this goal from beginning to end. From a teacher's perspective, teaching objectives are the basis for teachers to carry out teaching activities in the classroom. Objectives can provide teachers with teaching guidance. For example, different teaching objectives adopt different teaching strategies, and appropriate teaching strategies can be customized according to precise teaching objectives. Use Appropriate teaching methods, design and planning of suitable teaching processes, etc. From the student's perspective, teaching goals are like a beacon, which guides students' learning direction. Teaching goals allow students to clearly understand and master the knowledge content before learning.

P (pre-assessment) pre-test. The role of the pre-test is to assist teachers in accurately understanding how well students have mastered the content they have learned. Through the design of pre-test activities, teachers can understand students' independent learning of basic computer courses, mastery of basic computer course content, learning interests, and students' preparatory knowledge and abilities. This helps teachers adjust teaching content based on students' actual conditions. depth and progress. Pre-test activities can be released through the Xuedutong platform, and the activity forms are diverse. Do not use a single pre-test activity, which may easily increase study fatigue. For example, before the first class starts or when a new chapter is opened, a questionnaire survey can be used to understand students' mastery of basic computer knowledge. The most highly rated pre-test activities based on applied practice were an appropriate number of online questionnaires, followed by micro-video embedded questions and open question and answer discussions and quizzes.

P (Participatory Learning) participatory learning. Participatory learning is the core link in the entire teaching process. The popularization rate of basic computer courses is extremely high, and students are tired of learning and tired. Therefore, participatory learning focuses on how to make students actively participate in the learning process of the course. Student-centered participatory learning is different from previous teaching models, which places higher demands on teachers. Teachers must adopt more intuitive, flexible, and diverse teaching methods, and of course the effects must be obvious. Such efficient teaching methods can stimulate students' interest in learning and enable students to actively participate in classroom teaching activities.

The participatory learning discussed in this article refers to the 4F dynamic guided reflection method. In the design of classroom teaching activities, teachers mainly use the 4F dynamic guidance and reflection method to help college learners engage in classroom learning more actively and efficiently. The 4F dynamic guided reflection method was proposed by British scholar Roger Greenaway. It is a teacher's teaching design idea in the classroom, based on Facts - Feelings - Findings - Future (Future use) is a typical participatory learning activity design strategy that uses four steps (as shown in Figure 2) to ask questions step by step [3]. Among them, the meaning of facts is: the true statement of a certain thing or knowledge content, including the cause of the

event, the development process, and the changes and results of the situation, that is, all changes and phenomena of objective things, etc. For example: What basic computer course content did you learn in this class? Question words such as "when", "where", "who" and "what" are used to guide students to recall the objective knowledge content they have learned. The meaning of Feelings is: the subjective feelings of an individual after seeing or experiencing the development and changes of a certain event. For example: What do you think about what you learned today? What feelings did you gain from this learning activity? Findings means: finding something new or finding reasons and explaining why. In this link, attention should always be paid to guiding students to self-perceive changes in inner dynamics. For example: Have you discovered anything new about what you learned today? Or summarize knowledge, summarize experience, analyze reasons, etc. Future use is a reality that will happen or may happen in the future, and the application of future knowledge. For example: Do you think the content of the basic computer course you are learning today will be useful in the future? Or have you used this knowledge in real life? This link is to correctly guide students to gradually move in the right direction of self-awareness. Engage students in learning through the 4F dynamic guided reflection method. The model diagram is shown in Figure 2.

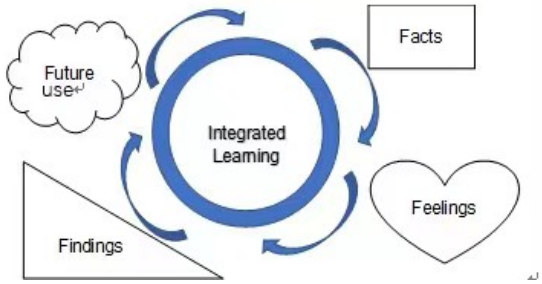

Fig 2. 4F Dynamic guided reflection model diagram

many teaching strategies around student-centered participatory learning methods, and teachers can use other participation strategies based on different knowledge contents in basic computer courses. Commonly used forms include group collaborative learning, group work display, brainstorming, group discussion, video production, case studies, experimental research, problem-based learning, fun games, and competitions, etc. They can not only enrich classroom activity and increase students' participation, but also improve students ' teamwork and communication skills. They can also enhance students' awareness of overcoming difficulties and students' ability to independently construct knowledge, thereby achieving multi-level learning goals enable every student to happily participate in learning.

P (Post-assessment) post-test. Post-test is one of the forms used to detect the current teaching effect, and its importance will not be described again. The main function of the post-test is to examine whether students have a certain grasp of the teaching objectives of this course. The post-test is to objectively evaluate whether students have completed the teaching and learning objectives of this course. There are many directions for teacher post-test, including emotion, skills, and knowledge. There are many forms of post-tests, such as: quizzes, online quizzes, topic comments, etc. Based on the feedback from students participating in each stage of the teaching process, teachers can promptly understand the content that has been mastered and not mastered in teaching and the existing problems, and make corresponding adjustments and improvements. For example: teachers check and fill in gaps based on the post-test results, and re-consolidate knowledge points that students have not mastered based on the students' post-test results.

S(Summary) Summary. Summary is the part of reviewing the gains. There are two aspects to the summary. One is the summary from the teacher's perspective. The teacher reviews and organizes the learning objectives to guide students to understand and summarize the content they have learned in this lesson, and helps students summarize and reflect on the learning results. At the same time, the teacher summarizes the strengths and weaknesses in the students' learning process and comments on them. On the other hand, there is a summary from the student's perspective. Students summarize the knowledge content gained in this course, reflect on the learning process, and demonstrate learning results.

4. Feedback on Student-centered Participatory Blended Teaching Design

In order to further understand the acceptance and future implement ability of student-centered participatory instructional design in computer basic courses, a questionnaire was conducted to collect data. There are a total of 226 questionnaires, which are divided into three stages of data collection and comparison of the same questionnaire: the beginning, the middle, and the end. Among them, in the questionnaire on students' interest in learning this course, A is very interested, B is interested, C is average, and D is not interested. The data results of the four choices show significant changes. During the course of the semester from the beginning to the middle of the class, the number of people who were "very interested" and "interested" gradually increased and the distribution was 55.23% and 8.9 %, and the number of people who were "not interested" in the course gradually decreased by 4.98%. 2.43%, 0.40%.

At the end of the semester, an anonymous questionnaire was used to obtain data analysis on students' satisfaction with the teaching of basic computer courses and whether students like the teaching mode of this course. 85.30% of students were very satisfied with the teaching of this course. 11.51% of the people are satisfied. The total is 96.81% satisfaction. In addition, the number of students who like this course very much is 78.13%, and the number of students who like it is 17.09%. Therefore, the total students' liking for this course is 95.22%, and students' liking and satisfaction with this course are basically consistent. Due to the good learning experience in this model, 95.3% of students expressed their willingness to try this teaching model in other courses.

During the teaching period, interview data were collected at the same time, in three stages: the beginning, the middle, and the end. Interviews were conducted at the beginning of the semester to understand students' expectations and requirements for basic computer courses. Some interviews were conducted during the semester to discuss some issues in the teaching process of basic computer courses. Interviews were conducted at the end of the semester to understand students' BOPPPS adoption of student-centered participatory teaching models. And the acceptance of the application of the 4F dynamic guided reflection method. Satisfactory results were obtained through interviews and questionnaires. Students are very willing to accept this teaching model.

Computer basic courses carry out student-centered

participatory teaching design and application practice. Comparative analysis of data collected from questionnaires and interviews before and after implementation shows that the current practical application teaching model is significantly better than the traditional teaching model. This article the teaching model studied can not only fully mobilize students' independent initiative and enthusiasm for learning, but also significantly improve students' interest in learning. It also improves students' self-development and cooperation abilities, and students' satisfaction with teachers' teaching has also improved. Therefore, currently Designing and implementing inquiry teaching models has strong practical significance.

5. Summary

The application practice of student-centered participatory hybrid teaching design in basic computer courses mainly explores the use of the BOPPPS teaching model combined with the 4F dynamic guidance and reflection method to basically realize a closed loop of student-centered and participatory teaching. It not only enables teachers to have a clearer teaching idea for preparing lessons and designing teaching activities, but it also promotes students to be more involved in learning. The BOPPPS teaching model itself is a closed-loop teaching model that focuses on students' comprehensive participation and development as well as anytime teaching feedback. It also pays attention to students' cooperation and personality development. This article explores and applies the teaching activity design of the computer basic course based on the mixed teaching model of 4F dynamic guidance and reflection method embedded in the BOPPPS teaching model. It not only focuses on student-centered, but also considers problem-oriented inquiry teaching. Reform is intended to be applied to curriculum reform in professional fields; it can not only increase and improve students' interest in learning; it can also improve teachers' educational and teaching organizational capabilities.

References

[1] Zheng Yanlin, Ma Yun. Online participatory teaching practice based on BOPPPS model [J]. Exploration of Higher Education, 2021 (10): 5-9.

[2] Pattison P, Russell D. Instructional Skills Workshop Handbook [M]. Vancouver: UBC Center for Teaching and Academic Growth, 2006.

[3] Zhang Dandan. Research on the application of BOPPPS teaching model in project management teaching [J]. Educational Modernization, 2019, 6(26): 209-210+212.

[4] Zheng Zhikun. Research on the application of BOPPPS model in junior high school geography teaching. Master's thesis of Yunnan Normal University. 2021.

[5] Liu Jiapei. Research on teaching design of BOPPPS teaching model in secondary vocational tourism courses. Master's thesis of Hunan Normal University. 2021.

[6] Yang Nan. Research on the application of BOPPPS model in intermediate Chinese listening and speaking classes. Master's thesis of Yunnan Normal University. 2021.

[7] Ruan Lujun. Research on the application of Internet + BOPPPS teaching model in the "Mental Health Education for College Students" course in higher vocational colleges. Educational Modernization [J]. 2019.

[8] Exploration of the teaching model of "Advanced Manufacturing Technology" based on the concept of BOPPPS and the mutual benefit of teaching and research . Science and Technology Information [J]. 2019.

[9] Sun Xiaoxiang; Wang Jue.

[10] Huang Wei. Apply it to practice: Research on the teaching application of activity-based subject courses. Master's thesis of Fujian Normal University. 2019.

[11] Zhong Chaoqun ; Zhang Xinzhen . Research on the application of BOPPPS model in newspaper and periodical reading classes for teaching Chinese as a foreign language—taking the Confucius Institute at the University of Hong Kong, Philippines as an example. Chinese Character Culture [J]. 2020.