

Research on the Construction of University Computer Course Based on Blended Teaching

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Abstract

With the rapid development of the new generation of information technology, online and offline blended teaching has become the trend of teaching mode reform in colleges and universities. This paper analyses the mixed online application advantages of the teaching mode, summarizes the online hybrid implementation process of teaching in college computer course, practice shows that online teaching can not only arouse the students' interest in learning for computing course, also can fully mobilize students' learning autonomy, improve the quality of university computer teaching.

Keywords: Blended teaching, College computer courses, Teaching reform, Autonomous learning.

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I. INTRODUCTION

Online and offline teaching model is a blended teaching model that combines offline traditional classroom teaching with online network teaching. With the development and popularization of Internet technology, information technology, communication technology and mobile devices, especially the rise of MOOC, the simple traditional teaching model is really difficult to meet students' thirst for knowledge, and the emergence of blended teaching reform has become inevitable. How to carry out blended teaching scientifically has become a new topic of discussion. The reasonable application of online and offline mixed teaching in college computer course teaching can stimulate students' enthusiasm for college computer course learning, cultivate students' autonomous learning ability, so as to improve the teaching effect.

This paper puts forward the content design method of "question guidance, knowledge implantation and incremental design" to lead the blended teaching design. It has created high-quality online and offline supporting resources featuring teaching materials, MOOC, practical training and virtual imitation. It innovates the student-centered and output-oriented online and offline mixed teaching model, applies computational thinking and promotes ability formation. A whole-process, multi-dimensional and automated comprehensive evaluation system is constructed, focusing on the learning process and oriented to goal attainment. It has formed a blended teaching system which can be copied and easily popularized, and can provide a reference paradigm for computer basic and information courses.

II. INTRODUCTION OF BLENDED TEACHING MODE

Blended teaching reform mode of main auxiliary teaching will make use of modern network teaching means, to maximize the teaching effect after combining with the current content, the teaching innovation through to reform the traditional teaching mode and method, let the students in teaching teachers carefully guided fully arouse the students' interest in independent comprehensive learning activities, improve students' participation in class and experience degree of classroom activities, in order to consolidate the learning foundation of students. The blended teaching mode of "online + offline" integration allows students to learn from shallow to deep step by step, which is more conducive to students' acceptance and absorption of knowledge points, and improve the teaching effect. At the same time, the blended teaching mode also changes the main body of the classroom, from the original teachers to students, so that students can learn to think in the teaching activities of hands-on problem-solving, which greatly improves the participation of students in classroom activities and the activity of students, and has more advantages than the traditional teaching mode.

Blended teaching can make full and reasonable use of various human resources, technical resources, media resources and environmental resources to provide the greatest convenience for learning, and design different learning modes according to different cognitive needs and psychological needs in the learning process. Through online learning and flipped classroom, the mode of one-way knowledge indoctrination is changed, and

students' ability of active learning and inquiry is guided and inspired. It helps personalized teaching, provides deeper course content, wider knowledge breadth, more practical training, and increases "remedial" resources such as live tutoring and exercise lesson videos, so that students have more choices in learning.

In the online and offline teaching mode, learning tasks are assigned before class, and students are driven by problems, so that they can learn independently with problems. The online and offline teaching mode requires teachers to integrate classroom teaching with network teaching in curriculum setting, teaching design, knowledge imparting and answering questions, so as to achieve the organic combination of "offline" and "online" in the teaching process, so as to improve the teaching effect.

III. DESIGN OF BLENDED TEACHING SCHEME FOR UNIVERSITY COMPUTER COURSE

The teaching scheme design of this course mainly includes the comprehensive processing of the fragmentation of teaching knowledge points, the construction of the resource library system, the design of the teaching process scheme and the design of the process assessment scheme.

3.1 Fragmentation and comprehensive processing of course knowledge points

According to the overall characteristics, teaching content and teaching objectives of the course, the knowledge points in the course are fragmented and comprehensively processed, including basic knowledge, key knowledge, difficult knowledge and expanded knowledge

3.2 Resource library system construction.

According to the basic knowledge structure system of the course, various examination resources such as micro-lecture, teaching activity cases, teaching chapters, practical training materials, homework, knowledge point ability test, unit ability test and so on are designed and made, and the existing resources are integrated according to the new teaching mode.

3.3 Process design of teaching activities

According to the teaching objectives and teaching schedule of the course, it focuses on online and offline interactive teaching process design and activity organization, including students' self-directed learning before class, online self-directed learning and self-ability test, teachers' answering questions in class, intensive lectures on key and difficult topics, classroom teaching interaction, case teaching analysis, etc. After class teaching effect analysis statistics, evaluation and problem reflection, improve teaching methods and other teaching process.

3.4 Strengthen the process assessment design

Establish a comprehensive teaching assessment and evaluation mechanism based on operational ability and supplemented by the Super Star Learning platform: comprehensive evaluation is carried out through teaching assignments, classroom interaction, pre-class sign-in, chapter tests, discussion, reading and other aspects of the results, and the comprehensive results are added to the score weight, so that students can distinguish the key content. The content of process-based teaching assessment is mainly combined with the classroom teaching requirements. Generally, it will be assessed from several aspects, such as pre-class check-in, homework completion, classroom question answering, and group PK. Students are required to sign in on time, do not sign on behalf, do not replace; Do homework independently, do not plagiarize, do not cheat and so on. We will carry out the evaluation system throughout the semester. Students can also check the Super Star Learning platform at any time to know their learning progress and achievements in time.

IV. BLENDED TEACHING DESIGN FOR COLLEGE COMPUTER COURSES

Blendedteaching mode of college computer basic course is based on the Super Star Learning platform, supplemented by the relevant learning resources on MOOC of Chinese universities, to carry out a new teaching mode. The whole course is divided into three stages according to time: before class, during class and after class. Based on the research of other scholars at home and abroad, the curriculum group carries out the following teaching design for the course content.

4.1 Before class

Teachers provide self-learning resources (MOOC resources, micro-class videos, teaching courseware, etc.) around the learning theme, as well as publish self-learning task requirements and quizzes (sharing online knowledge) on the Super Star Learning platform. Students can learn the video content independently, complete the chapter test according to the task requirements, and can repeatedly operate until they pass; And feedback the problems encountered in the process of self-study.

4.2 During class

Teachers will sort out the information on the Super Star Learning platform in advance, solve the problems encountered by students in the process of self-study in the first time according to the degree of difficulty, and give detailed lectures on the key points and difficulties. Students actively participate in the teacher's Q&A, and assist in Q&A, participate in class exercises and tests, and learn together.

4.3 After class,

Teachers track and analyze students' overall self-directed learning and urge students to strengthen pre-class learning. In view of the students' performance, we should constantly reflect on the teaching model and means and improve the teaching method. Students summarize their learning, whether they have met the expectations of self-directed learning, and expand their knowledge. Test again to see if learning is achieved.

V. EVALUATION OF BLENDED TEACHING OF UNIVERSITY COMPUTER COURSES

In order to effectively supervise and scientifically manage teaching, teaching evaluation is designed from four aspects: formative evaluation for students, goal achievement evaluation for curriculum, student evaluation and supervision evaluation for teachers, so as to stimulate students' learning enthusiasm and promote the continuous improvement of teaching.

Process evaluation. The course platform monitors students' online learning process and automatically generates students' formative evaluation.

Objective evaluation. After the in-class test and the final exam, teachers evaluate the achievement of teaching objectives, analyze the evaluation results and formulate improvement measures.

Student evaluation. Teachers collect feedback on teaching effects by issuing questionnaires. Students' satisfaction with each index is above 90% in the questionnaire results of two semesters. In the online teaching evaluation organized by the Academic Affairs Office, all the teachers in the team scored more than 90 points in the last two semesters, ranking among the top 20% of the teachers in the whole school.

Supervision evaluation. In recent years, the teaching team's teaching reform and practice oriented to "2 Features and 1 Degree" has been highly concerned and unanimously recognized by the school's supervision.

VI. FEATURES AND INNOVATIONS

Ideological and political elements are integrated into information technology classes, and moral education elements run through teaching: the teaching team insists on the unity of explicit education and implicit education, and integrates patriotism, Made in China and craftsman spirit into daily teaching activities.

Integrated construction of teaching objectives, content and resources to create "2 Features and 1 Degree": in accordance with the teaching philosophy of OBE (Outcomes-based Education), integrated teaching content and resources, combined with the needs of innovative talent training, carefully built course resources, both ladder and challenge, easy to achieve teaching objectives.

The teacher is leader, the student is main body, the form is various, and the effect is obvious: the student becomes the main body of the teaching activity, its self-study ability, the practice ability and the professional accomplishment has been greatly improved, the reasonable teaching method and the tool use fully tapped the student own potential, cultivated the student innovation spirit.

VII. CONCLUSION

The teaching of college computer courses based on blended teaching has achieved good results. Blended teaching will become the new normal of higher education in the future. This paper puts forward the content design method of "question guidance, knowledge implantation and incremental design" to lead the blended teaching design. It has created high-quality online and offline supporting resources featuring teaching materials, MOOC, practical training and virtual imitation. It innovates the student-centered and output-oriented online and offline mixed teaching model, applies computational thinking and promotes ability formation. A whole-process, multi-dimensional and automated comprehensive evaluation system is constructed, focusing on the learning process and oriented to goal attainment. It has formed a blended teaching system which can be copied and easily popularized, and can provide a reference paradigm for computer basic and information courses. In the next step, we will explore the blended curriculum teaching model integrating ideological and political elements, and achieve the goal of collaborative education between ideological and political education and professional education, so as to cultivate more applied talents with both ability and political integrity in line with the requirements of the new era.

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