Research and Practice of Mixed Teaching Mode Based on "MOOC+SPOC+Flipped Classroom"

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Abstract: Mixed teaching mode based on "MOOC+SPOC+ flipped classroom" realized the integration of MOOC traditional classroom, realize the teaching reform of "taking students as the main body and teachers as the mainstay", reformed the traditional classroom teaching model, improved the influence and teaching effect of university computer courses, improve the teaching level of the classroom teachers, making it an effective way to benefit college students and social learners.

Introduction

In recent years, Massive Open Online Course (MOOC) has quietly emerged. The construction of various platforms at home and abroad has been surging, and the number of courses and users on the line has grown by leaps and bounds. However, with the increase in the number of courses and the number of students on the MOOC platform, it also raises the quality of teaching. For example, because the curriculum has no threshold and the student base is very different, it will dampen the enthusiasm of students with poor foundations; the sense of urgency, the completion rate of the course is very low; it is a pure network teaching mode, the teacher cannot master the student's learning situation and affect the efficiency. As a result, Small Private Online Course (SPOC) came into being [1-2]. SPOC's small-scale private online courses, which are formed by applying the high-quality MOOC resources to the students and other groups through the setting of access conditions, not only make up for the shortcomings of traditional classroom teaching, but also integrate the advantages of MOOC online and open. Based on MOOC+SPOC teachers can carry out the flipped classroom[3-4], which means that the teaching content of the traditional teaching mode is turned over, the students change from passive learning to independent learning, the teacher becomes the leader from the lecturer, and classroom by the teacher becomes a student-body. The flipping classroom teaching based on MOOC+SPOC injects fresh blood into the traditional classroom, giving students more personalized learning experience, which helps to cultivate students' self-learning ability, innovative ability, independent thinking ability and language expression ability.

Related concepts

MOOC

MOOC is an online course open mode that has emerged in recent years. It has powerful data storage capabilities and processing capabilities. It can save learning process, progress, participation in discussions, etc., and understand and understand real data through big data. The student's learning situation and the electronic management of the teaching process [5]. The MOOC course integrates multiple social networking tools and various forms of digital resources to form a diverse learning tool and rich curriculum resources. MOOC breaks through the limitations of traditional curriculum time and space, and learns from the Internet around the world. Famous university courses at home and abroad. MOOC breaks through the limitations of traditional courses and can satisfy the learning of large-scale course learners. The MOOC course has a high enrollment rate and a high dropout rate.

This requires the learner to have a strong self-learning ability to complete the course content on time.

SPOC

SPOC is a Small Private Online Course, in which "small" refers to a student's size ranging from a few dozen to a few hundred; "private" refers to an applicant who sets restrictive access conditions for students and meets the requirements can be included in the SPOC course. For online learners who meet the admission requirements to study SPOC courses, they have the intensity and time of study, participate in online discussions, complete homework and exam requirements, and obtain certificates after passing the exam [6].

SPOC is the development and supplement of MOOC. It can be understood as: SPOC=MOOC + class, not only make up for the deficiency of MOOC in school teaching, but also a hybrid teaching mode combining online learning and offline, using MOOC video implement flipping classroom teaching.

The main teaching process of SPOC is: according to the syllabus, teachers regularly publish video teaching materials, arrange assignments and organize online discussions. Students complete video viewing, homework, and participation in discussions at the point in time under the guidance of the study list. In the classroom, the teacher conducts classroom lectures, handles online course Q&A, and conducts classroom tests. SPOC uses MOOC technology to support teachers in shifting their time and energy to higher-value activities such as discussion, task collaboration, and face-to-face interaction.

SPOC is a hybrid teaching model that combines physical classroom and online education. It not only combines the advantages of MOOC, but also makes up for the shortcomings of traditional education. In the design of SPOC teaching, it is necessary to pay attention to the network teaching platform is only the carrier of knowledge transfer; classroom teaching is the key to consolidate the teaching effect and master the teaching rhythm.

Flipped classroom

Flipped classroom means re-adjusting the time inside and outside the classroom and transferring the decision-making power from the teacher to the student. In this mode of teaching, valuable time in the classroom, students can focus more on active project-based learning, and jointly study the challenges of localization or globalization and other real-world problems to gain a deeper understanding [7]. Teachers no longer take up time in the classroom to teach information. Students need to complete self-learning before class. They can watch video lectures, listen to podcasts, read enhanced e-books, and discuss with other students on the Internet. Check the materials you need at any time. Teachers can also have more time to communicate with everyone. After class, students plan their own learning content, learning rhythm, style and ways of presenting knowledge. Teachers use teaching methods and collaborative methods to meet the needs of students and promote their individualized learning. The goal is to enable students to obtain more realistic learning through practice.

Mixed teaching mode based on "MOOC+SPOC+ flipped classroom"

The mixed teaching mode based on "MOOC+SPOC+ flipped classroom" means that with the support of modern information technology, teachers (the school or MOOC teachers) provide teaching resources such as teaching videos, topic discussions, test questions, etc. online. Self-learning, the teacher determines the offline classroom content based on the feedback of online data, and realizes the integration of online learning and classroom teaching. Turning the teaching and learning of traditional classrooms into online teaching and learning, and giving the right to learn to students, teachers no longer take up classroom time to teach information, but students learn independently outside the classroom. In the classroom, students are more focused on active, project-based learning, and teachers have more time to communicate with each student to improve the quality of classroom instruction [8].

The mixed teaching mode based on "MOOC+SPOC+ flipped classroom" mainly includes four stages, namely, creating SPOC, pre-course stage, in-class stage, and after-school stage. As shown in Figure 1.
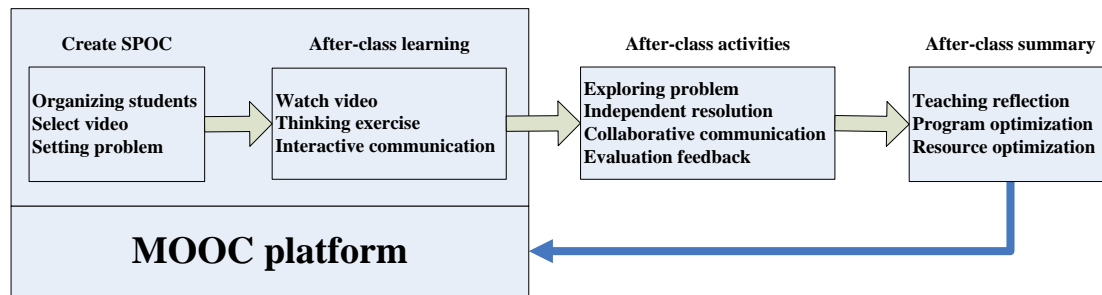

Figure 1.   Mixed teaching mode based on "MOOC+SPOC+ flipped classroom"

(1) Create SPOC

Based on the MOOC platform provided by China Computer Education MOOC Alliance, we will construct a SPOC that meets the actual conditions of our university. According to the needs of the course teaching, students should be provided with enough learning resources, including micro-video, exercise books and materials, etc., and an online learning platform should be set up for students to learn and interact with each other before class. Teachers organize small-scale student groups (for example, by class) and set up pre-class guidance for them so that students can take pre-class study with questions.

(2) Pre-course stage

The main work of this stage is that teachers release learning tasks, students self-prepare, realize knowledge cognition, and cultivate self-learning ability. This stage is guided by the self-learning ability of the students, based on the syllabus design course pre-study knowledge points, and publishes the learning tasks on the MOOC platform. Students log on to the SPOC platform of the Chinese University MOOC to watch the MOOC video; after the completion of the study, log in to practice the system completes the job submission; at the same time, students can interact online on the MOOC platform, QQ group or WeChat group. The students complete the preparatory tasks and feedback the preview effects and learning difficulties to the platform. The teacher appropriately adjusts the teaching content according to the feedback problem, so as to achieve effective teaching in the classroom. In this stage, the students are the real subjects, exerting subjective initiative, self-learning, and realizing knowledge.

(3) In-class stage

Teachers set up heuristic questions based on the setting of knowledge points, feedback problems and difficulties in the platform, and encourage students to search and analyze knowledge points. Integrate the pre-class teaching video and classroom teaching to complete the expansion and consolidation of knowledge. Students actively think according to the difficulties and problems encountered in their pre-class study, focus on learning, and fill in the gaps through classroom exchanges. In addition, these stages can also be guided by the development of comprehensive ability, requiring each classmate to come to the stage to explain and answer the questions of the students, which is very helpful for cultivating students' ability to be independent, adaptable and linguistic expression.

(4) After-school stage

According to the problems presented in the classroom activities, the teachers summarize and optimize the content, means and methods in the teaching links, further improve the teaching mode, improve the teaching effect, and promote the teachers' own development. On the other hand, this stage can be guided by cultivating innovative ability, designing some large-scale programming tasks, selecting and conducting comprehensive tasks by students, and reviewing and consolidating basic knowledge and expanding knowledge. Students use the extended knowledge provided by teachers in the MOOC platform, QQ group or WeChat group to practice innovation, and interact

with classmates and teachers online to understand the course content in a deeper level, thus realizing the sublimation of knowledge.

Implementation process

(1) Docking with the high-quality teaching resources of the MOOC Alliance and in-depth study of the mixed teaching mode of "MOOC+SPOC+ flipped classroom".

(2) Tailoring and combining the important knowledge points of "Programming Foundation I", organizing the modularized multi-level and professional integration teaching content, and formulating the teaching implementation plan based on the mixed teaching mode.

(3) In the "Programming Foundation I" teaching of the first semester of the 2018 computer science and technology freshmen, combined with the students' basic and professional characteristics, make full use of the high-quality teaching resources of the docking, and adopt the "MOOC+ SPOC+ flip classroom" The mixed teaching mode carries out the teaching of "Programming Basic I".

(4) Summarize the experience of the course teaching process, further optimize the course teaching content, improve the course teaching mode, and develop teaching cases according to the process implementation and feedback from teachers and students. On the basis of absorbing existing quality teaching resources, build an open teaching resource platform that meets the actual situation of our school.

(5) Apply the results to the "Programming Foundation I" teaching of the first semester of the 2019 computer science and technology major, and further optimize it.

Summary

Mixed teaching mode based on "MOOC+SPOC+ flipped classroom" realized the integration of MOOC traditional classroom, realize the teaching reform of "taking students as the main body and teachers as the mainstay", reformed the traditional classroom teaching model, improved the influence and teaching effect of university computer courses, improve the teaching level of the classroom teachers, making it an effective way to benefit college students and social learners. However, this model needs to continue research, continue to explore, and selectively practice and promote in combination with the actual curriculum, thus further serving the teaching reform.

Acknowledgement

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