The Study of the Online Teaching Model of "SPOC + Tencent Classroom" Based on Ke Tang Pai under the Epidemic Situation

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Abstract. Under the influence of the COVID-19, universities began to promote online education in China. However, there were many problems in online teaching. This paper aimed at the problems existing in the current online teaching, analyzed the advantages and disadvantages of small private online course (SPOC) platform, Tencent classroom and Ke Tang Pai, constructed the online teaching model of "SPOC + Tencent Classroom" Based on Ke Tang Pai. This teaching model not only carried out online teaching, but also effectively improved students' interest and participation in learning, and improved the teaching effect through students' comprehensive performance and feedback. This study provided reference for the development of online teaching and the improvement of teachers' online teaching ability.

1. Introduction

In order to resolutely win the battle of prevention and control of the coronavirus epidemic, the Ministry of Education notified on that all the students should postpone the opening of the spring semester. In response to the call of "Keeping Students Learning during Schools Disruption", online teaching had been carried out in different colleges and universities. There were some problems should be solved in the process of online teaching. Before the epidemic, China had already been in the forefront of the world in number of massive open online courses (MOOC), but teachers in colleges and universities used less, and some teachers who relied on offline classroom teaching were not familiar with the online teaching methods, and even had the tendency of rejection under the background of "Internet education ", therefore the online teaching method was a challenge for most teachers. Because of the deviation of cognition and the hasty response, some teachers simply moved the traditional classroom to online teaching, the quality of teaching was difficult to guarantee. Because of the separation of teachers and students in online teaching, there were phenomena such as human-computer separation, not listening carefully and skipping classes, especially the difficulty of online examination and invigilating examination, which could not guarantee the quality of examination. Because of congestion, Network disconnection, black screen, poor sound and shadow using a single online teaching had its inevitable defects.
2. "SPOC + Tencent Classroom" Based on Ke Tang Pai Teaching Model

2.1. Advantages and Disadvantages of MOOC

MOOC (Massive Open Online Course), is an open online teaching course for learners all over the world, which is the product of traditional classroom teaching reform and innovation. MOOC’s number of students is unlimited, a course can be carried on tens of thousands of people, it is far beyond the traditional classroom; the curriculum is open, anyone can independently carry out curriculum learning through the network, no longer limited by the region, schools and teachers. MOOC is the global knowledge sharing for the real sense [1]. Students can choose any courses they are interested in, and learn video independently in the right place and time, with full choice of learning. Students can decide their own learning schedule, learn effectively according to their own needs, and have full learning autonomy. MOOC brought not only great advantages to the development of higher education, but also a series of drawbacks. The curriculum objectives and contents in the MOOC are deviated from the objectives and contents stipulated by their colleges and universities, which is not conducive for teachers to change the learning progress and difficulty according to the students' real-time learning situation. Therefore, teachers need to carry out a large number of work when choosing MOOC which include a reasonable deletion of a single MOOC, and a collocation design of multiple MOOC. For students, MOOC have no systematic supervision of their course selection and coherent learning of the course. Therefore, it is difficult for some students with low desire to learn or weak self-binding to complete the whole course coherently, which reduced the students' learning efficiency and led to the high dropout rate of students.

2.2. Advantages and Disadvantages of SPOC Teaching

SPOC (Small Private Online Course) is also an online teaching course for learners worldwide. SPOC can satisfy the teacher to produce the course video which conforms to own teaching style [2]. When SPOC shared the relevant educational resources and teaching contents, only the corresponding courses are opened to the students of a certain course class in a certain school. The number of students is generally controlled between dozens and hundreds, and certain restrictions are placed on the conditions for students to enter the school, so that the required application conditions can be met, it is eligible for inclusion in the SPOC course. The SPOC combined the high-quality and abundant resources of MOOC with the traditional advantages of face-to-face classroom teaching, became a hybrid learning model combining online and offline, so as to reconstruct and innovate the teaching process. To some extent, it can effectively solve the problem of insufficient teaching resources in relevant schools. At the same time, combined with the difference of school and the difference of students' foundation, it is targeted to supplement the educational and teaching resources for schools, and in this process, it can effectively make up for the problem of insufficient pertinence of MOOC resources. The SPOC can obviously avoid the problems of low supervision, low completion of students' courses and poor learning efficiency in MOOC. First of all, in the aspect of the teacher teaching, teachers can make and upload SPOC, suitable for their own teaching style to better cooperate with classroom teaching, so as to obtain better teaching results. Secondly, in the selection of students, SPOC limit the identity and number of elective students, allow dozens or hundreds of learners around the world to study the course, and most of these students come from the same school, so as to screen out students with small differences in individual quality and high desire for knowledge, which is more suitable for class-based teaching. Finally, with regard to the completion of the course, the SPOC monitors the student's study time, participation in the discussion, completion of the homework after class and the passing of the examination.
The advantages of SPOC teaching mode are based on students' autonomous online learning and offline mixed teaching, but in the process of applying cloud platform, live telecast and synchronous classroom, the overload of users of epidemic prevention and control platform will affect the quality of online teaching.

2.3. Selection of Live Telecast Platform

Tencent Classroom is a professional open online learning platform developed by Tencent corporation. It is a dedicated online teaching platform for teachers, and an interactive learning platform for students. Tencent has accumulated many years of audio and video capabilities, with smooth, high-quality classroom live effect. Tencent classroom certification is simple, easy to open and learn, mobile phone and PC end can be used at the same time. It provided convenience with the function of looking back for learning again. Tencent classroom supports PPT synchronous demonstration, screen sharing and other rich teaching methods. In order to simulate the real classroom, Tencent classroom has set up the mode of asking questions, raising hands and discussing area to facilitate the timely interaction between teachers and students. Tencent Classroom simulated the offline classroom to the maximum extent.

Tencent classroom provided learners with a real classroom situation and strives to achieve the teaching effect of offline classroom. But there were also some problems: the interaction between teachers and students was relatively single, there was only discussion area at present; it did not support online learning behavior such as questionnaires, tests and examinations. It was difficult to supervise students' learning, and students' classroom behavior depended entirely on consciousness[3].

2.4. Selection of Teaching Process Management Platform

Ke Tang Pai is an online interactive class teaching management platform, teachers can carry out teaching process statistics and management; students can carry out course learning, check-in, testing, communication and interaction, examination. It is widely used in domestic educational institutions, providing teachers with convenient class management, homework online correction, score summary analysis and courseware sharing[4].

3. Construction of "SPOC + Tencent Classroom" Based on Ke Tang Pai Teaching Model

Chinese colleges and universities had cooperated with network teaching media companies in recent years to establish "SPOC teaching platform" as an online and offline hybrid teaching platform. Our school and Chinese University MOOC created a SPOC teaching platform together. Through this platform, teachers could carry out curriculum construction.

3.1. Preparation before Teaching

Teachers and students should ensure that the network, terminal equipment, application software and so on are available. Before class, students equipped with online learning software, hardware (mobile phones and computers) should ensure that the network signal is normal, and they are proficient in Ke Tang Pai, Tencent classroom students’ end and other APP applications. Teachers should urge students to master the operation of learning software skillfully, communicate with students more, and ask about the learning situation and find problems in time, so that teachers and students could solve problems together.

Teachers prepared the class content carefully. Most teachers used online teaching methods for the
first time, they might be so nervous that forget what to say. Because Tencent classroom had the function of looking back, the mistakes or oral errors would be recorded. Teachers must carefully prepare lessons before each class, so that language were regulated and accurate.

For quality and quantity of online teaching, teachers should conscientiously study the platform usage guide provided by SPOC teaching platform, Tencent classroom and Ke Tang Pai, and they should consult the platform customer service or experienced teachers, master the operation of teaching software skillfully, master how teachers teach and students learn, and deal with abnormal situations quickly.

3.2. Design and Development of SPOC Learning Resources

It required many resources to set up a course online, but it was easy to do in a short time. It mainly needed teaching resources, homework, question bank, reference materials and other resources. Resources could be ready at once, or could be prepared step by step with the progress of teaching. Teaching (video) resources were the most important part of class building and could be developed and produced in three ways.

First, The Ministry of Education had launched more than 24000 online courses in 22 online curriculum platforms, such as MOOC of Chinese universities and school online of Tsinghua University, for colleges and universities to choose to use, covering 12 undergraduate subject categories and 18 major categories of specialized higher vocational colleges, which could be directly introduced according to needs and implanted into their own SPOC teaching platform. Second, in a short period of time, it was very difficult to use many courses directly, which could only be used indirectly. According to the syllabus of the course, the online course video could be quoted indirectly, and integrated with the self-made video. The third, the recording software used in the self-made video was recommended to use a fee version, its sound quality and image are better. The self-made PPT or "live telecast" video was not the traditional classroom recording and telecasting, they should be organized in the unit of knowledge points, each lesson which could highlight the focus should only be between 10 and 15 minutes.

3.3. Design and Implementation of Teaching Activities

Teaching activities included pushing students' learning tasks, students' online learning, online classroom teaching, answering questions after class and so on.

3.3.1. The Assignment of SPOC Online Learning Tasks to Students

Under the teaching plan, the course related chapter knowledge points video, homework, PPT and other task points were pushed to the students every week at a fixed time, and the learning notices were issued through the SPOC platform. Students chose their study time and completed the corresponding task points on the SPOC platform freely. Students interested in issues and knowledge could express in the forum in the learning process, students and teachers could discuss on line together.

3.3.2. Preparation of Class Content

Before class, teachers prepared teaching materials on line according to the key points and difficulties of the knowledge points in class, students could raise doubts, questions of interest and learning feedback in the process of learning.
3.3.3. Live Telecast

The teacher's explanation as well as the teacher's voice carried on through the Tencent classroom. In class, the teacher explained the key points, difficulties and student doubts in detail, teachers and students could communicate in time.

3.3.4. Class Management

(1) Class Management

Two minutes before class, the teacher could click on the "attendance" function at the mobile phone or computer end, students could choose digital attendance, QR code attendance or GPS attendance. GPS attendance positioning was not accurate, the first two use was more common. This method saved more time than the traditional roll call. At the same time, the results of this attendance would also be pushed to the teacher or counselor after half an hour, so as to facilitate the feedback and management of students' status.

(2) Interactive Segment

When the single form of teaching activities was presented for a long time, the efficiency of listening would decline. At this time, teachers could insert interactive test questions or discussion questions on the PPT of the teaching process to improve students' participation, and attract students' attention again, so that the two states of "listening" and "participating in interaction" could be seamlessly integrated. The large screen could count the data of students' participation in interaction and the correct rate of test questions in real time, so that teachers could control the whole class. Teachers could also use the form of questions in the classroom to record students' performance results, the results were open to students, for students who have not yet achieved performance results, they would actively strive for the opportunity to answer questions in the classroom so as to improve their performance. This kind of question-and-answer teaching method could not only promote students to think positively, but also let teachers master the teaching process[5].

(3) Online Corrections of Works

After class, the teacher could arrange the homework directly on the classroom dispatch platform, used the bulletin board to remind each student, and the students would receive a reminder. After students finished their homework, they could upload their homework photos directly to the classroom dispatch platform. Class assignments enabled quick online assignments to be published and submitted. Teachers could correct all homework on the computer side or mobile phone side, when teachers finished the correction, students could doodle marking homework, the same comments could be pasted directly. This function was convenient for teachers to check the students' homework situation on the mobile phone end, which improved the efficiency compared with the traditional paper homework submission, and facilitated the teachers to supplement and explain the knowledge that the students had not mastered in time in the next class.

(4) Teacher-Student Interaction

Ke Tang Pai provided real-time private letter function. Based on the classroom assignment platform, teachers could use the following functions to achieve teaching reform: when students encountered problems, or had knowledge to communicate with teachers, they could use the function of private letter, teachers could immediately receive reminders. Teachers could check the results of direct private letter to students in the correction of homework, and informed the situation of homework or
provide more specific problems, so as to help students improve their communication quickly and effectively.

(5) Test

This could reduce the workload of teachers. Teachers set up a lesson in the computer-side classroom, they could choose the time to publish as well. Teachers set the order of random questions, random options, so as to avoid plagiarism between students. For this test, students could use their mobile phone to answer questions online anytime, anywhere. After answering the questions, students could see the correct answers and grades. At the same time, the software could also generate test analysis, automatically generated data statistics and analysis could graphically present homework and results, so that teachers could control the learning situation of the whole class.

4. Conclusion

This paper analyzed the advantages and disadvantages of MOOC and SPOC, constructed the online teaching model of "SPOC + Tencent Classroom" based on Ke Tang Pai, and attempted the teaching mode in the classroom. The result showed that this model could maximize simulation of the physical classroom and met the need of online teaching.

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