Research on Blended Learning Based on SPOC

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Abstract—**SPOC is a small but fine online learning platform. Blended learning is an organic combination of online learning and traditional face-to-face classroom learning, and it is the optimization and upgrading of SPOC. Based on the analysis of the SPOC and blended learning, this paper explores and constructs a blended learning model based on SPOC, and introduces the components and specific implementation process of each part in detail. Finally, three countermeasures for promoting the application of blended learning in Colleges and universities are put forward.**

Keywords—Small private online course; Blended learning; Learning mode; Countermeasures

I. INTRODUCTION

Since 2012, MOOC has attracted wide attention from educational circles at home and abroad. However, with the deepening of research, people find that MOOC has a low completion rate in learning and lack of face-to-face communication with the teacher, which leads to the incomplete learning experience of the learners. Under this background, SPOC, a small and precise online learning form, has gradually entered the field of vision. As a blended learning model, SPOC has retained the idea of open education in MOOC and advanced teaching design ideas. At the same time, it combines the advantages of face-to-face classroom teaching, so it can provide a complete learning experience for the learners and ensure the quality of teaching. For universities, MOOC is both an opportunity and a challenge [1]. We can seize the opportunity to integrate online learning resources such as MOOC, SPOC and other online learning resources to the traditional classroom teaching, to promote education modernization and to improve the effect of education and teaching, which has become the focus of the current teaching reform in universities. It is of great practical significance to introduce SPOC into the entity classroom and improve the quality of teaching in traditional classroom [2] Based on this, this paper, based on the concept of SPOC, combines the characteristics of SPOC and the actual needs of teaching reform in universities, with the help of new network learning environment, reintegration of online and offline resources, and explores and constructs a SPOC blended learning model suitable for the teaching, which will provides some reference for teachers who make use of SPOC in the course teaching.

II. THE CONNOTATION AND CHARACTERISTICS OF SPOC AND BLENDED LEARNING

A. SPOC

SPOC, Small Private Online Course, is a learning model that combines online and offline classes on the basis of MOOC. Since the concept of SPOC has been put forward, educators have interpreted its connotation. Armando Fox believes that SPOC is the introduction of high-quality MOOC resources into the traditional campus, as a supplement to classroom teaching, to improve the efficiency of classroom teaching [3]. Professor Zhu Zhiting of East China Normal University thinks that SPOC and MOOC belong to the same category, all of which are one of the online courses, but SPOC is more low-key than MOOC, and it is only open to students inside the campus. On the basis of analyzing the views of the experts and scholars, the author thinks that the connotation of SPOC mainly refers to: in order to integrate the MOOC and the traditional campus organically, through reasonable and effective design and selection, the online learning resources such as MOOC are introduced into a new teaching mode in the physical classroom. By enriching the learning resources and expanding learning environment, we can improve teaching effectiveness. At the same time, we also think that SPOC has the following characteristics when applied [4].

The one is the openness of learning resources. Learning resources of SPOC should not be limited to video in MOOC. SPOC, as a subsidiary of classroom teaching, has many sources of video resources, including MOOC, online videos, excellent courses or micro lessons.

The two is the flexibility to support the platform. A powerful and interactive learning management system is very important for the development of SPOC course. The learning support platform of SPOC should also be flexible, such as the school cloud column of the Chinese University's MOOC network; the fanya platform of superstar and intelligent tree network teaching platform; existing open source learning platforms, such as Moodle, Blackboard, and social software WeChat public platform, as long as it can be used to meet the needs of teaching.

The three is the blended teaching methods. SPOC learning platform is mainly used for online learning. In online classroom, teachers can organize teaching activities such as discussion, practice and competition. According to the

appropriate teaching methods of teaching content, such as flipped classroom, face-to-face teaching, we can use flexible ways.

B. Blended Learning

Although scholars at home and abroad have different expressions for blended learning, we find that there is no essential difference in their understanding of blended learning by summing up. Blended learning is a learning model that combines online learning with classroom teaching. It makes full use of the advantages of the online and offline resources, and effectively uses the learning resources and time, so as to attract students' learning enthusiasm, cultivate self-study ability and cooperative inquiry ability. Based on the analysis of blended learning at home and abroad, this paper summarizes its connotations. There are three main points.

The one is the mixture of learning environment. In blended learning, the online learning environment is mainly introduced, which integrates traditional classroom with online learning, and gives full play to the advantages of the two. In the traditional classroom teaching, teachers can carry out face-to-face guidance to students, monitor the conduct of learning activities, conduct the teaching activities, and facilitate the establishment of good relationship between teachers and students. In the network environment, students can learn independently according to their schedule, give full play to their subjectivity and help to improve their learning enthusiasm.

The two is a mixture of learning styles. Blended learning can contain many kinds of learning methods, such as autonomous learning, collaborative learning, etc. In the network environment, students can choose their own learning according to their needs. They can also carry out collaborative learning through learning platforms or social tools. In the classroom, students can learn anytime and anywhere through the Internet, cooperate and explore face to face with group members, and do collaborative learning.

The three is a mixture of evaluation methods. Because there may be a variety of learning forms in blended learning, the evaluation method should also be adapted to local conditions, including self-evaluation, group evaluation, formative evaluation and summary evaluation. Teachers can analyze and statistics students' online learning, online communication and self-test completion, and make formative evaluation. Group members can be evaluated according to each student's performance. According to the final exam organized by the university, teachers can give a summative evaluation of students in this course.

III. CONSTRUCTION OF LEARNING ENVIRONMENT AND LEARNING RESOURCES

A. Learning Environment

Learning environment is an external condition, and it is essential for learners to better develop their learning activities. The most important factor for the blended learning is to build an appropriate learning environment. The learning environment mainly includes traditional classroom teaching environment and online learning environment [5]. Here we can interpret it as a combination of learning resources and interpersonal relationships to support students' online learning. In the construction of online learning environment, we should pay attention to the support of the learning process, highlight the principle of learner centered learning, and facilitate communication between teachers and students. Therefore, in the construction of online learning environment, we should combine the existing conditions of the university, for different disciplines, students' situation and technical environment, after a comprehensive comparison, to build a SPOC learning support environment suitable for the university.

On the one hand, we can use the more mature MOOC systems, such as the SPOC platform provided by Chinese University MOOC, which generally have rich curriculum design modules and curriculum management functions. This system does not require high professional skills of teachers, so it is easy to innovate online learning environment and achieve high-quality resource sharing. On the other hand, some mature open source online management systems, such as Moodle, Blackboard, and so on, can be used as long as we can meet the needs of curriculum learning.

B. Learning Resources

The status of learning resource design in the whole mixed learning is very important, not only related to the students' learning effect, but also the whole teaching activities. There are online resource design and offline classroom instructional resources design for SPOC platform.

In order to attract students' interest, teachers can choose some high-quality and practical high-quality video resources in order to attract students' interest, so that the enthusiasm of the learners can be fully mobilized. The past boring text narrative or too long learning video can't attract students' interest, too much content, too miscellaneous knowledge, but not conducive to students' learning, which leads to the inability of learning activities to go on [6]. In order to facilitate the success of blended learning, we can choose or make similar learning resources for reference to the quality of MOOC or the production of excellent video in the open network. Aiming at several popular online learning resources, they can be transformed into our SPOC online learning resources through three forms of introduction, transformation and self-building. The introduction mainly refers to the adaptation of the resources on the Internet, such as the MOOC, the NetEase cloud class and the resources on the excellent video sites. Self-built mainly refers to teachers' self-made micro lectures based on the teaching objectives and learning contents of this lesson. The reference of high quality resources on the SPOC learning platform, the optimization and transformation of the high

quality courses in school and the integration of micro class video have formed a comprehensive teaching resource library with rich curriculum and knowledge.

The traditional learning resources mainly refer to the support materials and extensible resources provided by teachers for classroom learning activities, such as related cases, PPT courseware, reference books, and thematic learning websites, which are the complement of classroom learning activities. Whether it's online learning resources or offline resources, we must ensure that the design of resources is consistent with the knowledge points and teaching objectives, and the content arrangement is clear. Only in this way, can we help students master and understand difficult knowledge and improve learning efficiency and quality.

IV. THE DESIGN OF LEARNING PROCESS

The design of learning process is the practical application of the results of the earlier analysis and the design of resources. It is the core of the whole teaching model and the smooth implementation of the blended learning model. In the specific operation, we divide into several teaching units according to the teaching objectives and teaching contents, and one teaching unit is divided into three parts: knowledge transfer before class, knowledge construction in class, and knowledge consolidation after class [7]. Next, we introduce the operation process before class, in class and after class.

A. Pre-class Knowledge Transfer

Before class, it is the knowledge transfer stage of the learning model. For teachers, we need to select and design teaching resources related to this class to upload to SPOC learning platform. In order to enable students to understand the main points, teachers need to make detailed task sheets in advance. The task list includes all the tasks that students need to complete before class. It is the support of students' self-study, which can better guide students to learn according to the teaching goals. For students, under the guidance of the study task list on the SPOC learning platform, it is necessary to study the teachers' teaching resources independently and carry out the knowledge exploration according to the learning task. In the course of self-study, if problems or doubts are found, we can communicate with teachers and students through instant messaging (QQ group or WeChat group), and can also be discussed in the discussion module on the SPOC teaching platform. After the end of self-study, students need to complete the test of this class to understand which knowledge has been mastered, which need to strengthen learning, and what still exists the doubt needs the teacher to answer. At the same time, the problems of their own existence are summed up, which is only conducive to the understanding of the knowledge of the students, and also facilitate the teachers to better grasp the students' learning situation, so as to teach students in accordance with their aptitude.

B. Knowledge Construction in Class

In the classroom, it is the knowledge construction stage of the learning model. The purpose is to make the students master the knowledge completely, cultivate the students' creative thinking and the ability to solve the problems independently, and provide a complete learning experience. In the classroom, we divide a lesson into two stages: the first stage is knowledge review, the key points and difficulties are discussed, and the knowledge points of online self-study are clarifying. The second stage includes teacher assignment, team cooperation, achievement report, teacher reviews and so on. Taking problem as the main line, let students grasp knowledge and improve the ability of analyzing and solving problems in solving problems. For teachers, first of all, we should summarize the completion of the students' self-test on the SPOC platform, understand the problems encountered by the students in their study, what are more difficult to master, and simply record and organize the above problems. Before the start of the class, spend less time on the problems encountered in pre class learning and learning to ensure that most of the students can understand and master the content of this section. The next time is to carry out specific teaching activities, focusing on the training and training of students' comprehensive ability. For students, when teachers are reviewing difficult points, it is important to review their problems in pre class learning with teachers' thoughts. When talking about the place you don't understand the students should listen carefully, ask the teacher actively, and find the deviation there and correct it. In group discussion, students should actively participate in problem discussions and try to solve them with previous experience. For problems that are really hard to understand, communicate and cooperate with group members.

C. After-class Knowledge Consolidation

After class is the phase of knowledge consolidation. After the end of the traditional classroom teaching, the students mainly finish the homework, and do not have much communication with teachers. In SPOC blended learning, teachers will summarize and organize the knowledge points that need attention, and then upload them to the SPOC learning platform in order to review and consolidate the students according to their pre class learning and performance in the class. Secondly, teachers should combine the teaching objectives and design the test questions of the knowledge points involved in this lesson. At this time, we can choose some topics beyond the teaching objectives in order to understand the students' mastery. At the same time, students can log on to the SPOC platform to see the summary knowledge points and complete the test questions. When faced with difficulties, the students can consult in the online discussion module of SPOC platform to get targeted guidance. By actively communicating with classmates, we should carry out thinking collisions and constantly improve our understanding and mastery of knowledge.

V. COUNTERMEASURES TO EFFECTIVELY CARRY OUT MIXED LEARNING

A. Strengthening Support for Blended Learning

The support from university is the most important factor that influences the willingness of teachers to use blended learning. Therefore, universities should give great support to technical equipment and incentive policies. In technology and equipment, in addition to the conventional hardware facilities, the university should build a network learning platform, and ensure the stability and functions of the platform. Teachers and students should upload and download learning resources smoothly, and online communication is convenient and fast. Besides, the universities should realize the full coverage of WiFi on campus, so that students can learn online by mobile terminals such as mobile phones, Pad and notebook PC. In the policy aspect, the universities should introduce the guiding documents about the mixed learning, and explain the blended learning model, the evaluation standard and the time arrangement, so as to make the teachers carry out the blended learning. At the same time, universities should introduce incentive policies for blended learning to provide financial support for teachers who use blended learning. Universities should reduce workload and ensure that they have their own time [8].

B. Carrying out Training on Blended Learning

Usability is an important factor that influences teachers' willingness to use blended learning. If teachers do not have the knowledge of information technology and teaching methods, the difficulty of implementing blended learning will increase, which will affect their willingness to use. Therefore, universities should have training of the blended learning for teachers. In the training content, it mainly includes information technology and teaching method: in information technology, the content of the training is based on the use of the online learning platform and the technology of micro lesson making. Teachers should be able to master every function of online learning platform, familiar with the operation of production software, and be able to record micro lectures by themselves. In the teaching method, we should pay attention to the teacher's ability to design the network course, the ability of the design of the blended learning.

C. Actively Creating the Campus Culture of Blended Learning

Culture is a way of working together towards a common goal. If a university can form a blended learning culture, it will greatly enhance the enthusiasm of teachers to apply blended learning. University administrators should actively create blended learning culture. First of all, University administrators should strengthen the propaganda of blended learning and let teachers understand the advantages of blended learning and the necessity through conference preaching, expert reports, and other ways. Secondly, we should give full play to the role of the grass-roots units in colleges and departments, and encourage the active teaching and research activities of blended learning. Finally, we should give full play to the role of the backbone teachers, give some praise and reward to the backbone teachers who actively carry out blended learning, encourage them to play a leading role, and form an atmosphere of active acceptance and application of blended learning.

VI. CONCLUSION

Education determines the future of the society. The change of a new learning model is not only a matter of universities and students, but also the transformation of the concepts of the educational authorities, the parents, the employers, the news media and many other social groups. The promotion and application of blended learning needs the recognition and support of the whole society. The blended learning is not successful simply by the university or the education department. At present, some universities have carried out the certification of the online courses and the mutual recognition of the credit between the colleges and universities. Some employers also begin to pay attention to the diploma of graduates' online courses, and some experiments and attempts on blended learning are also carried out in an orderly way. We have reason to believe that in the near future, blended learning will become one of the mainstream modes of talent training in higher education in China.

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