



Research on the Design of MOOC-SPOC Based University Teaching Model

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Abstract. This paper demonstrates the feasibility and necessity of applying the MOOC-SPOC teaching mode, designs the MOOC-SPOC teaching mode from three aspects, such as constructing learner portrait, customizing task list and offline flipping classroom, and summarizes the “six steps of online teaching”, namely “one point The MOOC-SPOC teaching model was designed in three aspects, including MOOC-SPOC image, customized task list and offline flipped classroom. Finally, the effectiveness of the MOOC-SPOC-based university teaching model is evaluated from three aspects: teaching effect evaluation, learning behavior evaluation, and teaching service evaluation.

Keywords: university teaching · model design · MOOC-SPOC

1 Introduction

With the rapid development of modern Internet technology, information technology and artificial intelligence technology, national education informatization has stepped into an unprecedented new height, MOOC, SPOC and other new modes of online education are rapidly sweeping in China’s education field, relying on China University MOOC, Xue Tang Online, Love Course Network and other Internet platforms have been commonly used, but universities are basically still using traditional classroom teaching mode internally. The research and application of MOOC, SPOC and other online education modes are still in the exploratory stage [1]. In this paper, by reviewing a large amount of literature and collecting excellent teaching cases of university online education, we summarize the “six-step online teaching method” for implementing MOOC-SPOC teaching in universities, which integrates the independent learning behaviors of students’ video watching, online discussion and classroom discussion. The paper proposes an “online + offline” assessment method, which provides a reference for the implementation of online teaching mode in universities [2].

2 Analysis of the Feasibility and Necessity of Applying MOOC-SPOC Teaching Mode

There are many excellent application cases at home and abroad, and there are many research results on the application of MOOC education model, so it is feasible to study this topic based on previous research results [3]. From 2012, which is called “the first year of MOOC” until now, 10 years have passed since the birth of MOOC, and the resources of MOOC on the Internet are very deep, but now the traditional classroom is still the main focus within the university. From the perspective of time, it is very necessary to implement MOOC-SPOC teaching mode in universities to keep up with the requirements of the times and adapt to the level of university network education.

3 MOOC-SPOC Teaching Model Design

3.1 Constructing Learner Portraits

Develop personalized learning solutions for students. Learner profile is a transfer application of the “user profile concept” in the education field. In the business field, user profiles are used to determine user needs to achieve accurate marketing, while in the education field, students are a unique user group, and building accurate learner profiles can be an important way to achieve personalized teaching [4]. In the paper “Using Learner Portraits to Achieve Personalized Course Recommendations”, Lily Wang uses triple analysis of basic learner information, behavioral data and text sentiment, combined with deep neural networks, to build learner portraits and thus achieve personalized course recommendations [5]. By taking pre-course tests, platform data analysis, questionnaires and basic information analysis to deeply understand students’ basic conditions, learning needs and learning expectations, precisely locate students’ personalized learning needs, assign students to classes according to their basic conditions, and integrate the concept of personalized service into them.

3.2 Customized Task List

Improve students’ initiative and motivation with task-driven mode. The learning phase of students is completely offline, without the teacher’s check and supervision, and students’ independent learning ability is mixed. By issuing task lists throughout the teaching, based on the pressure guidance of completing tasks, the subjective initiative of online learning can be improved and the learning effect can be expanded.

3.3 Offline Flipped Classroom

Carry out a two-way learning mode in which teachers and students learn from each other and students learn from each other. At the end of each stage of learning, carry out offline flipped classroom-style seminar class, in which the stage learning content is summarized and students’ thinking is dispersed, so that students in the basic class can absorb and learn from the learning experience of the extended class, and teachers can strengthen guidance and also understand and learn from the different views of students’ perspectives, “teacher-student” and “Students” and “teachers” learn from each other and improve each other.

4 MOOC-SPOC Teaching Model Process Discussion

As an online open course, unlike traditional courses, the university does not arrange the course hours according to the syllabus, but only a small number of hours to clarify to students the learning methods, assessment methods and offline flipped classroom implementation. Other hours are arranged in the students' self-study class time, so that students can adjust themselves according to their own learning efficiency and learning progress, giving full play to the students' learning initiative. Do, five research, six evaluation" six steps.

One division means that students are divided into different learning classes according to their own academic level and learning nature to distinguish different learning needs, and then divided into different learning groups within the classes according to their different ability qualities to meet students' personalized learning needs. Based on the theory of learner profile construction, we use pre-tests, questionnaires, platform data analysis and basic situation analysis to divide students into basic classes and extension classes according to their individual characteristics, personal performance and personal development, so as to precisely locate students' own levels and meet their personalized learning needs.

Second look, refers to the student online learning to watch the course video, according to the teacher online release of each stage of the student learning task list, within the specified time to complete the course to watch learning.

Three exercises, which refer to the completion of the MOOC accompanying exercise questions after students complete each video viewing task, are used to timely consolidate the knowledge points in the currently studied videos. Taking the training students as an example, different level groups complete the MOOC accompanying exercises corresponding to their respective task lists.

Four-do, means that students finish the MOOC videos and accompanying exercises, and then complete the post-lesson exercises on the task list according to their own thinking. The teacher uses the service platform to post the assignment online and set the deadline for submission, while students submit the assignment as a document and upload it online within the specified time.

Five research, refers to the students in the completion of each stage of learning tasks, further discussion of the knowledge learned, is the deepening of knowledge summary, the main way includes online course discussion forum posting speech and offline and students of the physical interaction, flipped classroom-style case study. Students or teachers can post in the online discussion forum, teachers can answer, and students can also express different opinions for discussion; while the offline seminar is mainly for students to speak and discuss, teachers are only responsible for guiding. Using this method can fully mobilize students' learning enthusiasm, so that students have a deep impression in the classroom and learn more solid knowledge.

Six evaluations, which refer to students' mutual evaluation of their respective submitted after-class assignments, while the teacher can also participate in the evaluation, and their scores are included in the final course grade. In the case of training students, for example, the teacher sets a minimum number of student mutual evaluations, and the mutual evaluation participation is involved in the assignment grade to prevent malicious evaluations while ensuring fairness.

Therefore, the total grade is mainly composed of five parts: video watching + MOOC test score, post-class homework score, online discussion score, offline classroom seminar score and centralized online exam score. In order to make students pay more attention to the online learning process, the final exam and the usual performance are divided according to the ratio of 4:6. In addition, for the convenience of calculation, all grades are calculated on a percentage system, with a score of 100.

5 Evaluation of the Effectiveness of MOOC-SPOC Based University Teaching Model

In order to effectively evaluate the effect of using MOOC + SPOC teaching mode, this paper takes Ethics and the Rule of Law as an example and focuses on three aspects: teaching effect is analyzed from students' final exam results under video monitoring, learning behavior is analyzed through the data of the platform to analyze the activity of students' behaviors such as video watching, online discussion and post-class homework, and teaching service is The teaching service is evaluated by anonymous questionnaire.

5.1 Evaluation of Teaching Effectiveness

Through the unremitting efforts of the new mode of teaching for one semester, a total of 140 students of the course "Ethics and the Rule of Law" achieved good results in the final examinations, with 100% of students referencing and 100% passing rate. From the distribution of scores, 0% of students scored less than 60, 100% of students passed the final exam, 69% of students scored more than 80, and 27% of students scored more than 90, which shows that the MOOC-SPOC based university teaching model has achieved a more satisfactory teaching effect.

5.2 Evaluation of Learning Behavior

The evaluation of students' learning behavior is mainly based on the in-depth analysis of the data from the service platform, based on the learning data of students in the three months from February 3, 2022 to May 3, 2022, and the trend of student interactions with hourly changes. The main study hours of students are concentrated on Monday from 7:00 a.m. to 10:00 a.m., Wednesday from 9:00 a.m. to 12:00 p.m., and students study more hours between 13:00 p.m. to 17:00 p.m. and Friday from 21:00 p.m. to 23:00 p.m. relative to other time periods, as understood by the survey As students' study time is mainly concentrated on Monday and Wednesday morning, students' study enthusiasm is the highest during this time.

The majority of the students had completed 90%-100% of their studies, accounting for 86.43% of the students, and the majority of the students had completed their studies well. The survey understood that a total of 19 students failed to complete all the tests in class and failed to submit the assignments after class in time due to the epidemic quarantine and equipment failure, resulting in the completion of their studies not reaching 90% or above, accounting for 13.57% of the total number of students. 13.57%. As shown in Fig. 4.4 of the basic data of the platform discussion, the interaction rate reached

157.66%, the teacher input rate reached 95.62%, and the student support rate reached 63.91% within three months of the course implementation, indicating that the discussion forum discussion is relatively good. In summary, the students' learning behaviors performed relatively well under the MOOC-SPOC-based university teaching model.

According to the MOOC platform data, five students in the basic class who were lagging behind in their learning progress were tracked and observed, and the trend of students' learning completion over time was plotted. On March 9, the teacher began to intervene in the students' learning behaviors, adopting such methods as discussion and interview, concentrated study, and focused question and answer sessions to help them, and on March 12, the students' learning completion rate returned to an upward trend and leveled off around March 30.

If the teacher does not take intervention measures, the trend of landing according to students' learning progress will drop to 0 around March 11, representing student dropout, similar to the MOOC teaching model. It can be seen that by carrying out the MOOC + SPOC teaching model, teachers can take timely interventions according to students' learning status, effectively preventing students from dropping out, improving overall teaching outcomes and enhancing teaching quality.

5.3 Teaching Service Evaluation

The teaching service starts from the offline guidance of students to register for the course until the end of the online examination. The specific teaching services mainly include offline learning guidance, online discussion and Q&A, offline case teaching, post-course learning resources, learning progress supervision, etc. The satisfaction of teaching services is analyzed through the results of the SPOC questionnaire distributed to students.

6 Conclusions

According to the survey, 140 questionnaires were distributed and 140 questionnaires were collected. According to the questionnaires, students recognized the learning effect brought by the MOOC + SPOC online education mode and expressed satisfaction with the teaching service of this mode. 78.98% of the students liked the SPOC teaching mode adopted by the teacher this semester, 65.41% of the students thought this mode stimulated their interest in learning the course, 70.42% of the students said they had a better grasp of the course content through SPOC teaching, 54.67% of the students thought their independent learning ability had been improved, 80.13% of the students were satisfied with the overall SPOC teaching mode, 12.54% of the students were satisfied with the overall SPOC teaching mode, and 12.54% were satisfied with the overall SPOC teaching mode. Accounted for 12.54%, and only 7.33% were dissatisfied.

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