

The Design and Teaching Practice of College SPOC Mixed Teaching Mode——Based on the Macroeconomics Course

Wu Xiaohua^{a,*}, Yang Xueli

Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang, 163319, China

^asansan333_0@163.com

**corresponding author*

Keywords: MOOC, SPOC, blended teaching, teaching practice

Abstract: The emergence of SPOC blended teaching mode can make up for the quality shortcomings of the MOOC. The SPOC model is small-scale, professional and restrictive. The characteristics can adapt to the university teaching system. Based on Macroeconomics courses, this paper deeply analyzes the principles, objectives, reform and innovation points and model construction of the SPOC blended teaching mode. It can realize the rationality, implementation and popularization of SPOC teaching mode design, and serve for colleges and universities.

1. Introduction

In the era of large-scale open online course MOOC, the number of online platforms, online courses, and student registration has exploded, causing a quality crisis, and thus promoting a new round of education revolution. Small scale restricted online course SPOC can effectively promote the deep integration of online teaching and offline teaching with the characteristics of small-scale, professional and restrictive, It can make up for the shortcomings of teaching quality in MOOC era. Through the construction of SPOC mixed teaching mode in Colleges and universities, on the basis of continuous practice, further improve the university curriculum system, SPOC mixed teaching mode curriculum construction can solve the “the last kilometer problem” of student development as the center.

Domestic and foreign Scholars deeply analyze the connotation, advantages, teaching mode and practice of SPOC. First, SPOC mode is proposed. With the increasingly prominent limitations of MOOC, SPOC was first proposed by Professor Fox in 2013^[1], and domestic scholars were proposed by Kang Ye-qin of Tsinghua University in 2014^[2], and then international exchanges were carried out (Xu Wei et al., 2014^[3]). Domestic research on SPOC has become increasingly mature since 2014, Some scholars (Zeng Mingxing et al., 2015^[4]; Zhang Xiaojuan et al., 2018^[5]) believe that SPOC not only inherits and improves MOOC, but even surpasses MOOC. Second, SPOC advantage analysis. On the one hand, the curriculum is based on the characteristics of "small-scale and restrictive", which can effectively serve the university teaching (Chen Ran et al., 2015).^[6] On the other hand, SPOC advocates hybrid teaching to integrate the length of MOOC and the

advantages of face-to-face teaching.(FOX,2014^[7]; He Bin et al2015.^[8]).Third, the construction of SPOC mixed teaching mode.Some scholars at home and abroad through course preparation, online teaching, offline teaching and other aspects, and some scholars through pre-class online resource development, pre-class students' self-learning, in-class problem inquiry, after-class consolidation and improvement. Fourth, SPOC practice research. Foreign universities such as Harvard University, Massachusetts Institute of technology, University of California, Berkeley are the earliest to carry out SPOC teaching mode. Through practical operation, we can see that SPOC is the inheritance and development of MOOC, and teachers can carry out differentiated teaching.The practice shows that SPOC hybrid teaching method has strong feasibility of implementation and research.In China, the SPOC course of “university physics” launched by Tsinghua University is an early application of SPOC teaching mode in Colleges and universities in China,Then take the course as an example to carry out the SPOC Hybrid Teaching in domestic colleges and universities. (Zhong Lixia et al,2015^[9]; YAO Lin-xiang et al,2018^[10]). It can be seen that SPOC is superior to traditional online teaching.

This paper takes the construction of SPOC mixed teaching mode and curriculum practice in universities. Full-time college students have certain common characteristics and have a certain level of knowledge and culture. It is in line with the "small-scale, professional and restrictive". By developing reasonable online resources and intensive training of offline classroom difficulties and frontier hot issues, the mixed teaching mode can effectively grasp the learning effect of learners, and conduct targeted teaching content construction. It can better serve the teaching for colleges and universities.Taking Macroeconomics as the practical course, the SPOC mixed teaching mode is constantly improved in the teaching process. The aim is to realize the rationality, implementation and generalization of the SPOC mixed teaching mode design.

2. Construction of SPOC Mixed teaching mode

2.1. A comparative analysis of MOOC and SPOC

A comparative analysis of MOOC and SPOC shows that they have the same points: first, based on the improvement of the current strong network infrastructure conditions, it can provide teachers and students with ubiquitous cyberspace. Teachers can update the latest learning content in time without being affected by time and space. On the other hand, teachers can check students' learning effect in time without the influence of time and space and master the common problems faced by students. Learners can also access online teaching resources through PC, mobile phone, tablet and other terminals, breaking the limitation of learning space and time. Second, the remarkable feature of the Internet is the openness of resources and information. For learners, They can enjoy the open course resources and sharing platform, They can also master the course framework and learn the course content. The learning effect should be strengthened through online tests. Compared with traditional classroom teaching, different learners can learn online resources repeatedly according to their own needs to improve the learning effect. For teachers, Teachers can effectively use the fragmented time to screen, sort out and update the information on the Internet. Such as Macroeconomics, after the two sessions each year in China, teachers can timely push the government work report, the annual GDP or quarterly GDP on the website of the National Bureau of statistics. The introduction of monetary policy tools under the Monetary Policy Department of the people's Bank of China, and the report on the implementation of China's fiscal policy. The information processed by teachers through fragmentation is not only conducive to the control of the teaching content in detail, but also systematically construct the overall knowledge.

Differences between MOOC and SPOC: first of all, MOOC and SPOC were proposed at different times. MOOC was proposed by Dave Cormier and Bryan Alexander in 2008. SPOC was

proposed by Armando fox in 2013. MOOC can let more learners learn high-quality online resources, which is conducive to the realization of educational equity. However, due to the rapid growth of platforms, courses and the number of students in the MOOC era, the teaching effect is affected. There are quality problems. On this basis, SPOC makes up for the short board of quality in MOOC era, which is the inheritance and development of MOOC. Second, different access conditions for MOOC and SPOC. Due to the large-scale differences of MOOC, it is not good for teachers to grasp the characteristics of students. It is not conducive to the design of teaching content according to the characteristics of students. The small-scale and restricted access of SPOC is conducive to the analysis of learners before teaching. The teaching content is suitable for students' needs through correct evaluation. The small scale is conducive to the supervision in the learning process. Third, MOOC and SPOC have different teaching modes. Most MOOC is online video teaching methods, which can not flexibly organize the teaching content according to the characteristics of students. SPOC can classify teaching and provide course resources suitable for students. Offline teaching can timely grasp the problems faced by students in the learning process and adjust the teaching content in time. SPOC teaching can carry out offline research teaching for example group discussion, group task and project presentation. MOOC is only online learning, without offline collision of ideas and effective communication with teachers. The learning effect of MOOC will have an impact. Fourthly, MOOC and SPOC have different service objects. MOOC is more inclined to all learners. It includes full-time students, part-time students and active learners in order to improve their self-worth, while service object of the SPOC is more inclined to full-time students.

Under the background of the new era of "Internet +", we should not only talk about the advancement of new technology, but also put forward practical teaching solutions according to local conditions. SPOC mixed teaching mode is a teaching mode that can deeply integrate information technology, online teaching resources and offline classes. College students have certain common characteristics. The construction of SPOC mixed teaching mode is an important embodiment of the reform of university education supply side, which is "recognizing change in advance, responding positively and seeking change actively", and has important guiding significance for educational decision-making.

2.2. SPOC mixed curriculum design principles

The course construction requires "student development as the center". Through the improvement of the difficulty, depth and challenge of the course, it aims to improve students' ability to solve problems, apply practical skills and stimulate their learning initiative. The biggest problem in implementing the golden course construction is that of teachers. And the SPOC mixed curriculum construction can meet the requirements of gold course construction. Macroeconomics is built by western economists. It is scientific in explaining economic growth, but its essence is to serve the bourgeoisie. Therefore, as far as Macroeconomics is concerned, we should treat its theoretical knowledge dialectically, and effectively integrate ideological and political education with the construction of specialized courses. The curriculum design is required to be high-order, innovative and challenging.

2.2.1. The principle of high order

The construction of SPOC mixed curriculum system can strengthen the overall design of curriculum system, integrate online and offline into a whole, and have abundant online resources such as timely pushing macroeconomic hotspots, real-time sharing, and effective offline activities. It can promote the effective combination of knowledge, ability and quality. Through economic case discussion, it aims to improve students' problem-solving ability. Curriculum construction focuses

on "student development as the center", and promotes the higher level of curriculum. For example, when explaining macroeconomic policies, we can combine the hot topics and government work reports of China's two sessions. Students should understand China's macroeconomic policy objectives. They can study the adjustment direction of fiscal policy and monetary policy. By combining China's economic reality with theory, students conduct in-depth discussions to promote mutual penetration of knowledge and ability.

2.2.2. The principle of innovation

The SPOC mixed curriculum system is conducive to the construction of teaching content that reflects the frontier and the times, such as the unemployment problem in macroeconomics. When analyzing the unemployment problem, it is customary to use the natural unemployment rate, while ignoring the institutional factors. In the classroom, we can compare and analyze the unemployment situation in China, the United States, Britain and Australia under the COVID-19 epidemic. The students will investigate and study in person and explain with facts. For example, in the part of macroeconomic policy, combining China's fiscal policy and monetary policy, the reasons for China's high economic growth should be understood. Teachers use advanced and interactive teaching methods and emphasize the necessity of studying socialist economics with Chinese characteristics. Teacher should understand the advantages and disadvantages of western macroeconomics dialectically. It is conducive to highlighting the innovation of the course.

2.2.3. The principle of challenge degree

The SPOC mixed curriculum system is conducive to creating a golden course, which needs to improve the difficulty of the course and dig the depth of the course. It can force teachers and students to improve their ability level. Teachers need to master modern teaching technology, integrate online resources for students, and promote offline and online systematization. Students can improve their problem-solving ability by completing the tasks assigned by teachers. It is challenging for teachers and students. Teacher should improve the "Golden Examination" system. And teacher can make full use of online examinations such as tests, assignments, group tasks, discussions. The difficulty of usual examinations should be increased. It would enhance the course challenge.

2.3. SPOC Mixed Teaching Mode Design

Based on the course design of Macroeconomics, the SPOC mixed teaching mode is divided into five parts: preparatory stage, pre-class stage, in-class stage, after-class stage, and later improvement stage.

Preparatory stage: This stage mainly includes the analysis of learners, course content, learning environment and the construction of learning resources. Learner analysis under SPOC mixed teaching mode focuses on the students' characteristics. Curriculum analysis refers to the division of mixed learning content according to learning objectives, and the fragmentation of learning content to form learning content units, which can be combined with knowledge content and expanded content. It is worth noting that the fragmentation of learning content should also pay attention to the systematization of knowledge construction. Analysis of learning environment includes investigation of network environment. As the SPOC mixed teaching mode is aimed at the integration of online and offline, a good network environment is the key factor to ensure the completion of teaching content. Students' learning network environment can be investigated through questionnaires. In the post-COVID-19 era, teachers can push learning materials, especially for individual students with poor network signals. The design and development of resources can develop learning resources

through three modes: "quoting, reforming and self-building". Comparing the three modes, "quoting" excellent online course resources is low in cost. In the post-COVID-19 era, the demand for course resources can be met in a short time, but it cannot be reformed. Due to the restriction of authority, we can't directly publish tasks, assignments, group tasks, etc. Teachers need to build separate online resources, and the integration of knowledge system is general. "Reforming" online course resources has greater authority than "quoting". Teachers can design other online resources according to the characteristics of class students. However, the courses that can be "reformed" in the platform account for a relatively small proportion. "Self-built" learning resources take a long time, especially when it comes to video recording, which costs a lot, but the advantage is that online resources can be designed according to students' characteristics.

Pre-class stage: That is the shallow learning stage which can guide students to learn independently through video guidance and task list guidance. The purpose is to promote students to understand their learning objectives. The learning guidance stage can refine the problems that students face in learning and improve the efficiency of classroom learning.

In-class stage: the advanced learning stage, including online learning platform and offline classroom. In the post-COVID-19 era, online learning platforms such as Superstar Learning Pass release videos, online activities, discussions, etc. Teachers can master students' watching videos, online activities and discussions, and evaluate students' learning effects. The offline classroom in the post-COVID-19 era includes face-to-face classroom instruction and virtual offline live classroom instruction. The virtual offline live classroom instruction replaces the traditional classroom instruction in order to cope with the fact that students can't study at school in the post-COVID-19 era. In 2020, because students didn't return to school, virtual offline live classrooms, such as Tencent meeting and Dingding, were used instead of traditional offline classroom. In 2022, some students returned to school. Others didn't return to school. Teachers can synchronize the online and offline classes. Offline classroom or virtual offline live classroom can focus on common problems. It is also possible to display the results according to the content of students' task list, trigger group discussion and stimulate students' learning potential.

After-class stage: That is deep learning stage. Through after-class homework and feedback evaluation, students can focus on weak links. Through feedback evaluation from other students and teachers, students can check and correct problems.

later improvement stage: after the completion of each teaching cycle, teachers should sort out the current SPOC mixed teaching methods and modes. Through the questionnaire, students can give more feedback on the importance of offline classroom or virtual offline live classroom, which shows that the SPOC mixed teaching mode has certain practical significance. Through the questionnaire, teachers can quickly grasp the problems existing in the teaching cycle and know the needs of students in time. Teachers can adjust learning resources and learning forms. For student, it can stimulate learning initiative and improve higher-order thinking.

3. Conclusions

Curriculum construction can solve the problem of personnel training and provide theoretical support and guidance for the realization of the goal of compound talents training. The SPOC mixed teaching mode can not only cultivate students' ability to solve complex problems, but also improve the professional ability of teachers engaged in curriculum construction. The construction of SPOC mixed teaching mode can promote the supply side reform of higher education. It can provide an effective implementation scheme for the construction of "golden course" in Colleges and universities. It has certain promotion value to provide effective implementation plan for the construction of "golden course" in colleges and universities and to train talents in line with social

needs.

Acknowledgments

This research was supported by Teaching and Research Project of Heilongjiang Bayi Agricultural University in 2019(NDJY1909); "13th Five-Year Plan" Key Project of Heilongjiang Province Education Science in 2020(GJB1320235)

References

- [1] Armando Fox. *From MOOCs to SPOCs [J]* . *Communications of the ACM*, 2013, 56(12): 38-40
- [2] KANG Ye-qin. *An Analysis on SPOC: Post-MOOC Era of Online Education [J]*. *Tsinghua Journal of Education*, 2014, 35(01): 85-93.
- [3] Wei Xu, Yongzheng Jia, Armando Fox, David Patterson. *From MOOC to SPOC: Lessons from MOOC at Tsinghua and UC Berkeley [J]*. *Modern Distance Education Research*, 2014.(04):13-22.
- [4] Zeng Mingxing, Li Guiping, Zhou Qingping, Qin Zunyue, Xu Hongzhi, Zhang Binlian, Huang Yun, Guo Xin. *From MOOC to SPOC: Construction of a Deep Learning Model [J]*. *China Educational Technology*, 2015(11): 28-34+53.
- [5] Zhang Xiaojuan, Lv Lijie. *Constructing the Deep Teaching Model for Deep Learning under the SPOC Platform [J]*. *China Educational Technology*, 2018.(04):96-101+130.
- [6] Chen Ran and Yang Cheng. *Blended Learning for SPOC [J]*. *Distance Education in China*, 2015(05):42-47+67+80.
- [7] Armando Fox, David A. Patterson Richard Lison et al. *Software Engineering Curriculum Technology Transfer: Lessons Learned from MOOCs and SPOC[R]*. *Electrical Engineering and Computer Sciences University of California at Berkeley Technical Report*, 2014.
- [8] He Bin, Cao Yang. *SPOC: MOOC-based Innovation of Teaching Processes*. *China Educational Technology*, 2015(03):22-29.
- [9] Zhong Lixia, Hu Qintai, Hu Xiaoyong. *Research on Develop and Application of Generative Learning Resources for SPOC [J]*. *China Educational Technology*, 2018(05):118-124.
- [10] YAO Lin-xiang, ZHOU Guang-wei. *The design and teaching effect analysis of SPOC mixed teaching mode in colleges and universities [J]*. *Education Research Monthly*, 2018.(12):92-100.