Study on a Support Service System under the New “MOOC+SPOC”-Based Mixed Teaching Mode

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Abstract. A support service system is an important condition for guaranteeing teaching and learning effects. Based on theories and concepts concerning new mixed teaching modes, the concept of the new “MOOC+SPOC”-based mixed teaching mode is analyzed and defined, and coupled with the MOOC+SPOC-based computer course practice of H university in China, a support service system model is constructed. A questionnaire survey method is adopted to learn about students’ various demands for support services and in view of their demands, measures for improving the support service system are put forward.

Raising Issues

The rise of MOOC (Massive Open Online Courses) plays an increasingly important role in education, especially higher education, and MOOC has brought about not only more and more extensive and in-depth debates but also all-round fission from university’s cellular structure to the decisions at each level and management modes involved in higher education[1]. In recent years, there has been gradual progress in the research centering upon MOOC support service issues, and in spite of fragmented research, the importance of support service has been mentioned in all such research literature, showing the great value of MOOC support service in the development process of MOOC. It is thought in some research that the core value of support service lies in encouraging learners to firmly believe in network-based MOOC learning, guaranteeing MOOC learning efficiency, overcoming learners’ loneliness in the learning process and enhancing the core competitiveness of MOOC [2]. As for as the individual experience of learners is concerned, on the one hand, learners need individualized attention paid through support service; on the other hand, learners need fully humanistic support to meet their need demand for support service in their learning process. MOOC has advantages of abundant resources, wide coverage, low cost, etc., but its massive scale makes it impossible to provide individualized support service for students. In order to make up for the shortcomings of MOOC support service, a new MOOC+SPOC-based (Si Bo Ke) mixed teaching mode has emerged at the right moment. This mode provides teaching of proprietary featured SPOC courses on the basis of sharing MOOC high-quality course resources and its most important feature is its more focus on the each link of learning and targeted individualized support service to produce better teaching and learning effects, based on which the research on a support service system under the new MOOC+SPOC-based mixed teaching mode becomes the focus of the research in this paper.

Theoretical Basis and Concept Definition

Theoretical Basis

Constructivist Theory. Firstly, the importance of learning environment is emphasized in constructivism and it is thought in constructivism that learners can only effectively construct knowledge by utilizing social interactions and necessary learning resources. Secondly, it is believed
in constructivism that “Collaborative Learning” plays a key role in the construction of knowledge, with focus placed on the collaboration and exchange between students and between students and teachers and the interaction between teaching content and teaching media[3]. Thirdly, the design of learning activity is stressed in constructivism and it is thought in constructivism that teachers should provide learners with various resources and encourage learners to initiatively explore and complete knowledge construction, so learning activity support service can also produce an important effect on learning effect.

**Humanism Theory.** A basic view of the humanism theory is that learning theories should start with the position and significance of learners themselves, and should emphasize learner-centered teaching, with research focused on creating a good environment for learners and allowing them to perceive the world from their own perspectives and reach the highest state of self realization. The flipped classroom implemented based on “MOOC+SPOC” has realized the organic combination of high-quality MOOC resources and face-to-face classroom teaching[4], reflecting the “Student-centered” teaching concept.

**Concept of A Support Service System under the New “MOOC+SPOC”-Based Mixed Teaching Mode**

MOOC+SPOC refers to proprietary featured SPOC online open courses established by each school based on MOOC and is a massive synchronic SPOC implementation mode based on MOOC [5]. A support service system is an organic whole consisting of various service support elements involving interrelated and interactive information, resources, personnel and facilities for the purpose of providing effective guidance and helping and promoting students’ self-directed learning and all-round development[6]. In this paper, a support service system under the new “MOOC+SPOC”-based mixed teaching mode is defined as an organic whole under the new “MOOC+SPOC”-based mixed teaching mode, consisting of various service support elements involving learning environment, learning activity and flip classroom that are provided for students to meet their demand, with support personnel dominated by MOOC and SPOC teachers.

**Construction of A Support Service System under the New “MOOC+SPOC”-Based Mixed Teaching Mode**

Coupled with the MOOC+SPOC computer course practice of H university in China, a support service system under the new “MOOC+SPOC”-based mixed teaching mode is constructed, and this system consists of three subsystems: a learning environment support service subsystem, a learning activity support service subsystem and a flip classroom support service subsystem, with the system model as shown in the figure below:

![Figure 1. Model of the Support Service System under the New “MOOC+SPOC”-based Mixed Teaching Mode.](image-url)
Learning Environment Support Service Subsystem

**Video Resources.** During SPOC course learning, video presentation is dominated by short micro-videos and a course consists of a number of modular short videos, with each lasting for about 10 min and having its own subject and content so that students can clearly know their learning tasks and realize fragmented learning. Diverse video functions enable students to directly enter the next video to learn with no need to exit through on-demand button setting.

**PPT Courseware.** PPT arranges multiple elements like information set graphics, images, animations and sounds it wants to express in a set of illustrated pictures, involving the entry-based and visualized content processing and the aggregation of various kinds of materials, showing the network intersectionality between different kinds of knowledge.

**Learning Guidance Document.** A learning guidance document provides novel and detailed introduction to the overview of a course, and teachers and teaching assistants provide notices and reminders related to the course on the course bulletin board in a timely manner, with the explanation of SPOC platform application and the guidance on the use of each module function provided at the same time to enable learners to get a clear learning path after entering the platform.

**Instruction to Learners:** It includes the basic requirements of the course, teaching content, teaching methods, score obtaining and credit certification, with specific instructions and explanations available to help students determine definite learning plans and learning objectives.

Learning Activity Support Service Subsystem

**Interactions.** In the problem discussion area, students can initiate topic discussions in view of the questions about technology use and can send posts, reply to posts, make comments or report; in the learning discussion area, teachers can devise discussion topics beforehand based on course content and organize and guide students to actively participate in discussions.

**Simulation Practice.** Practice items related to the course content are added to the students’ learning process and students can conduct process simulation and scene understanding in the preset problem situation, which can effectively train students’ thinking ability.

**Staged Testing.** Staged testing involves chapter-based tests and mid-term tests, with test topics intended to train students’ divergent thinking ability. After each test, a teacher will release students’ test scores in a timely manner to remind students to pay attention to their own learning status of the current video.

**Assignment Arrangement.** Assignment arrangement involves unit-based assignments and the final assignment. Students can design their own assignments based on the assignment template available, with specific assignment requirements and detailed scoring rules provided in the assignment bar. Students can get teachers’ correction feedback and detailed scoring feedback and explanation in a timely manner after completing their assignments, which can effectively help students to digest and reflect upon course content.

**Learning Evaluation.** Learning evaluation consists of teachers’ evaluation and peer evaluation, with the peer evaluation mainly focused on assignments, with ten students to evaluate one student’s assignments within the required period of time according to scoring requirements and evaluation details. The average of the peer evaluations by the ten students will be the student’s assignment score.

Flip Classroom Support Service Subsystem

**Independent Learning outside the Classroom.** The main task of this stage is to read textbooks, independently download and watch SPOC video courses and complete online test practice of each subject. As for the doubtful and difficult points encountered by students in their learning process, they can discuss them with other learners in the course discussion area of the website. Students’ learning at this stage can guarantee their clear learning objectives and help students complete the knowledge transfer with micro videos as the core.
Internalization of Knowledge in the Classroom. Classroom teaching is mainly conducted in the form of problem-oriented group-based discussions, with the first 35 minutes being a "Result Show" stage, where students can show their learning results and learning effect based on groups, known as "Showing Kung Fu" and "Looking for Gold"; the following 10 minutes being a "Problem Solving " stage, where the questions prepared before class are discussed and answered in class and the last 50 minutes being a "Doubt Removing" stage, where teachers answer common questions.

Survey and Analysis of the Demand for Support Service under the New MOOC+SPOC-Based Mixed Teaching Mode

This questionnaire survey, with SPOC students of H university as respondents, is intended to provide some new concepts, ideas and suggestions for the construction of MOOC+SPOC course support service by learning about students’ demands for support service in many aspects and to better improve students’ learning effect.

Survey and Analysis of the Demand for Learning Environment Support Service

As for the survey of video resources, in terms of the demand for video definition and smoothness, 63.2% of the respondents consider them absolutely necessary and 27.7% consider them quite necessary; in terms of the diversity of video recording modes, 71.1% of the respondents consider them absolutely necessary and 17.3% consider them quite necessary; in terms of the demand for learning route navigation, 64.3% of the respondents consider them absolutely necessary and 18.5% consider them quite necessary; in terms of the demand for comprehensive and convenient function instructions and search, 80.1% of the respondents consider them absolutely necessary and 16.6% consider them quite necessary. The data above show that students have high demands for media technology environment support, including video definition, diversity and navigation clarity.

Survey and Analysis of the Demand for Learning Activity Support Service

As for the demand for learning exchange modes, 31.6% students hope to have expansion-type social media means-based support, such as QQ and MicroBlog, 13.2% hope to have video chat room functions, 15.4% need forum-based support and 8.9% wish to have an intelligent question answering system; the survey of evaluation modes shows that 39.7% students prefer peer evaluation, 21.6% prefer teachers’ evaluation and 18.9% prefer computer-based evaluation. The data above show that the recognition of the students and the exchange and evaluation modes they need should be considered during the design of learning activity support service.

Survey and Analysis of the Demand for Flip Classroom Support Service

In terms of the necessity for teachers to carefully prepare lessons to enrich course content, 58.9% students consider them absolutely necessary and 31.8% consider them quite necessary; in terms of the necessity for teachers to give timely feedback to students’ statements in class, 67.3% students consider them absolutely necessary and 20.6% consider them quite necessary; in terms of the necessity to provide a practice link in class, 59.7% students consider them absolutely necessary and 33.6% consider them quite necessary. The survey data above show that teachers’ teaching ability and sense of responsibility is of great importance for flip classroom support.

Measures for Improving the Support Service under the New MOOC+SPOC-Based Mixed Teaching Mode

1. Improvement on Learning Environment Support. Constant improvement in terms of good learning logic organization, before-class learning guidance schemes, clear navigation function routes, comprehensive and convenient function instructions and search, etc. can allow students to have better learning experience; in terms of video presentation, teachers should pay attention to video
definition and smoothness, constantly supplement and update some of the SPOC videos and gradually construct MOOC resources suitable for the school and the students at school to guarantee the quality of teaching videos; diverse video recording modes should be provided, such as on-the-spot videos, discussion-type and interview-type videos and Khan Academy’s videos.

2. Improvement on Learning Activity Support. Interactive learning activities should be conducted to allow students to learn in exchange and collaboration. First, some constructive discussion topics should be designed. Second, forums with user-friendly interfaces should be constructed so that learners can easily and rapidly find the clue of each discussion topic [7]. Third, teachers should participate in such forums in an active and proper manner by either providing certain collaboration outlines for learners or making students get involved in spontaneous collaboration. Fourth, attention should be paid to diversified forum functions and such social network media as QQ and MicroBlog should be utilized to enrich forum functions.

3. Improvement on Flip Classroom Support. In order to adapt to the teaching needs against the background of SPOC, teachers must constantly update and improve their own technology and technology and strengthen learning and training to cultivate a teaching team able to satisfy the needs of flip classrooms; supervision of students’ after-class learning links should be conducted through further evaluation system improvement; detailed sorting-out and amendment of teaching resources such as completed before-class task lists, class discussion content and exercises should be conducted; exchange learning, mutual reference and mutual learning should be strengthened to practically and effectively improve flip classroom implementation effect.

Conclusions and Innovation

The concept of a support service system under the new MOOC+SPOC-based mixed teaching mode is accurately defined in the paper, a support service system model under the new MOOC+SPOC-based mixed teaching mode is constructed and measures for improving the support service under the new MOOC+SPOC-based mixed teaching mode are put forward, with theories concerning support service systems enriched in the paper, of practical significance for improving learning effect.

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References