
THEORETICAL UNDERSTANDING AND APPLICATION COUNTERMEASURES OF MOOC

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ABSTRACT

MOOC, as a new course model, provides free teaching resources to realize complete learning experience, and its advantages such as network crossover and timely interaction have a huge impact on traditional higher education. Based on the understanding of MOOC, this paper analyzes the changes brought by MOOC to the teaching reform in colleges and universities, and proposes the strategies to be adopted for the teaching reform in colleges and universities. For example, higher education authorities should strengthen guidance, advance prudently, and support MOOC construction in policy and finance. Colleges and universities should learn from MOOC's high-quality education resources and advantages of advanced education concepts, build MOOC alliance platform, and explore the localization development path of MOOC. Teachers need to improve their teaching methods and skills.

Key Words: MOOC; University teaching; The teaching reform.

1. INTRODUCTION

The application of information technology in the field of education promotes the development of teaching mode. In 2008, Dave Cormier and Bryan Alexander proposed a new model of Online education called The Massive Open Online Course (MOOC), or MOOC. Its teaching characteristics are based on the principles of pedagogy and cognitive psychology, with knowledge points as the basic teaching unit organization mode and learning mode, and through the teaching video, homework exercises, forum interaction, e-mail and examination five elements interwoven into the network teaching process. Under the MOOC platform, teachers are the providers of resources, initiators and organizers of courses. Students choose course content according to their own interests, watch instructional videos according to their own schedule, read relevant materials, participate in online and offline interactive discussions, and complete course assignments and tests. With unprecedented openness and transparency, MOOC attracts more and more users through heuristic and guided teaching, which promotes the popularization and sharing of high-quality educational resources, and contributes to the reform and progress of Higher Education [1].

Since 2012, Massachusetts Institute of Technology (MIT), Stanford University and Harvard University in the United States have provided free course learning opportunities for the public with Coursera, Udacity and EDX. Since then, well-known universities in the world have joined

MOOCS platform. China's first-class universities, such as Tsinghua University, Peking University, Fudan University and Shanghai Jiaotong University, joined MOOC successively in 2013 and launched their own characteristic courses, setting off a boom in the development of MOOC in China.

On October 10, 2013, Tsinghua University launched the first Chinese version of MOOCS platform - "Xuetang online"; on April 8, 2014, Shanghai Jiaotong University launched the self-developed "good university online" MOOC Chinese platform; On May 8 of the same year, the "University of China MOOC" platform jointly created by Netease cloud classroom, ecourse.com and the Ministry of education was officially launched. Colleges and universities across the country can carry out MOOC construction and application through this platform; On May 12, Shenzhen University and 56 local universities jointly established the "National Union of local universities UOOC (excellent courses)". The majority of social groups and enterprises also provide convenience for the development of MOOC, such as Youku company and Udacity reached a cooperation agreement, and became the domestic Udacity publishing platform. After 2015, MOOC has entered the "post MOOC" era of rational development, and the number of well-known MOOC platforms and courses at home and abroad has tended to grow steadily. According to the latest statistics of Class Central, by the end of 2017, the total number of MOOC learners had reached 78 million, with 20 million new MOOC learners added in 2017; more than 800 universities participated in the construction of MOOC, while the number of online courses increased from 6850 at the end of 2016 to 9400. In terms of the number of registered students, the top five MOOC platforms are Coursera, edX, Xuetang online, Future Learn and Udacity.

The development path of MOOC at home and abroad can be roughly divided into three types: One is to release official MOOC platforms with the support of relevant education departments, such as Thailand's "Thai MOOC", South Korea's "K-MOOC", Mexico's "MéxicoX"; The second is to establish MOOC platform or MOOC Alliance under the promotion of well-known universities and professors. Most of the early MOOC platforms choose this path, including "Coursera", "edX", "Xuetang online", "good university online"; Thirdly, some relevant enterprises or organizations participate in the MOOC movement under the MOOC wave, including the "Canvas Network" developed from the learning management platform canvas and Netease cloud classroom, and the "China University MOOC" platform jointly built by aike.com and the Ministry of Education [2].

2.THE CHANGES BROUGHT BY MOOC TO COLLEGE TEACHING

The technological change brought by MOOC to higher education is described as "an educational storm" in the history of education. MOOC provides a good opportunity for the in-depth integration of information technology and classroom teaching, effectively promotes the curriculum construction and teaching reform, and promotes the mutual integration of online resources and classroom teaching.

Changes of course teaching mode

In the traditional classroom teaching process, the classroom teaching mode dominated by "teaching" has occupied the classroom for a long time, and the "bilateral interaction" between teaching and learning has become a "unilateral" transmission and acceptance. The most concentrated representation is teaching replacing learning, teaching controlling learning and

teaching determining learning. The teaching content, teaching process, teaching methods and teaching results are all controlled by teachers, so it is difficult for students to give full play to their own initiative. MOOC's teaching value orientation with "learning" as the center shakes the classroom teaching mode which focuses on "teaching". It gives the students the right of learning initiative and choice. Students can customize personalized learning programs according to their own learning interests and learning needs, and control the learning progress according to their own ability level; At the same time, students can also use the learning community to interact with other people: actively choose their own learning methods and content, take the initiative to ask teachers, teaching assistants or other peers, and share their views and answers in the learning community. MOOC are not limited to time and place. They can learn anytime and anywhere, making the learning process more flexible. MOOC learning respects the students' learning will, plays the students' subjectivity in the social construction, and effectively promotes the reform of personalized teaching methods [3].

Changes of teaching contents

Under the traditional mode of running a school, colleges and universities pursue the unity of curriculum requirements and teaching contents unilaterally. However, in MOOC learning, teaching materials become fully electronic, and knowledge flows in the network in the form of information flow, which makes the teaching content change as follows: First, the richness of teaching content. With more and more schools, universities, libraries, museums and cultural and educational institutions networking, the enrichment and sharing of educational resources is incomparable with any written teaching materials. Rich information resources will have a profound impact on the cultivation of students' creative thinking, the transformation of the relationship between the elements of the teaching process, and the promotion of the transition from examination oriented education to quality education. The second, the timeliness of teaching content. The traditional teaching content is relatively simple and lagging behind. A textbook often needs to be taught for several years. The knowledge content of students' learning is out of date and cannot meet the needs of the development of modern society. MOOC courses provide a variety of the latest teaching content, which can reflect the progress of science and technology. On the Internet, students can obtain different teaching contents and the latest development trends of the same subject at the same time, which not only broadens students' knowledge vision, but also helps students to learn new knowledge based on the frontier of the discipline [4].

Changes in teaching completion

Compared with traditional university teaching, MOOC learning is a new teaching mode in which students can study, complete their studies and take exams independently without teachers' supervision. Students only need to have a network and a learning terminal and register on the MOOC platform to choose their favorite courses according to their interests and carry out learning anytime and anywhere. Because of this, this "fingertip learning" model has been popular among the public since its birth [5]. In early 2014, Shanghai Jiao-tong University launched four courses for the first time, with a total of 60000 students, including 65 countries and regions with more than 50 students. Judging from one of the "mathematics Tour", the number of registered students is relatively large, but only 3% of them finally took the examination and obtained the "certificate of completion". These data have aroused some people's doubts about MOOC

learning. However, if we think about it carefully, we will find that the dropout rate of online education is not the same as that of traditional education. In traditional education, dropping out of school often means that students lose all learning opportunities. However, in the network education, many students' learning time can be fragmented and discontinuous. The quality of their learning effect and the completion situation completely depend on the degree of students' autonomy. Students who only want to get credits or degrees through MOOC often fail because of their lack of self-discipline. In fact, a part of the dropout rate of MOOC comes from students' initiative to give up. These students only want to learn the content they are interested in, practical knowledge and the chapters needed in the course through the MOOC platform. Even if they have completed the course, they may not take the examination and obtain the "certificate of completion". For them, the course is meaningful if they learn what they need to know. As Jonathan, the manager of Udacity, said: "a small percentage in a large scale is still a large number. For example, there are 60000 students registered for Udacity's "Introduction to programming" course. Although the pass rate is 14%, as many as 23000 people complete the course, which is much higher than the number of teachers in a teaching team of traditional universities for many years.". The number of registered students has gone up, but the high dropout rate is still a problem worthy of in-depth study. How to use the network to teach better and really improve students' participation in online learning will become the key factor affecting the healthy development of MOOC.

3. STRATEGIES FOR THE IMPLEMENTATION OF COLLEGE TEACHING REFORM UNDER THE BACKGROUND OF MOOC

Policy and financial support of higher education authorities

The construction of MOOCs in colleges and universities needs the government's support for policy and financial. MOOC has not been in China for a long time and is still in the development stage. Therefore, it is more necessary for the education authorities to issue relevant standards, such as the qualification requirements of MOOC providers, international exchanges and cooperation between universities, MOOC credit certification, government investment and private investment in the construction of MOOC. At the macro level, we should guide the development of MOOC to prevent the "three hot" situation. In order to solve this problem, the government needs to introduce policies to encourage the cooperation between universities and enterprises, and promote the development of MOOC; schools and enterprises can bring rich educational resources and abundant financial resources for mutual benefit and win-win, so as to shorten the personnel training cycle of enterprises and reduce the operating costs of enterprises; the government should encourage colleges and universities to cooperate with the society to realize the learning objectives of national learning and lifelong learning. At the same time, increasing government financial investment is an important guarantee for the sustainable development of MOOC. The development and research of courses need financial support, so the government's investment is the leading force in the construction and promotion of MOOC. To help the public establish the development concept of "great education", create an atmosphere in which the government takes the lead to participate and publicize MOOC, highlight the important position of MOOC at the national level, promote MOOC learning to obtain social recognition as soon as possible, and provide internal force for the development strategy of MOOC in China [4].

Colleges and universities should strengthen the reform of MOOC teaching

Establish MOOC alliance platform to promote resource sharing

With the rapid development of MOOC, new opportunities and challenges have been brought to the curriculum teaching reform in colleges and universities, which requires managers to build efficient resource-sharing platforms to promote classroom teaching. Under the guidance of the competent educational authorities, a number of universities have voluntarily formed a non-profit and open curriculum alliance platform. In the process of building the alliance platform, we should change the old idea that sharing the resources of foreign schools will weaken their competitiveness and lose their brand value, reach consensus, formulate relevant rules and regulations to participate in the co-construction and sharing of MOOC, and build corresponding co-construction and sharing mechanism. Institutions of higher learning enhance their popularity and social influence through alliances.

Construction of mixed teaching mode

MOOC have the advantages of high-quality educational resources and advanced educational concepts, while traditional classroom teaching makes up for the shortcomings of MOOC, such as difficulty in urging students to learn, inability to communicate face to face and inability to carry out practical activities. Aiming at the advantages and disadvantages of MOOC and traditional classroom teaching, adopting the blended teaching mode combining online MOOC learning with offline classroom teaching is the development direction of the future teaching reform in colleges and universities. Some universities and institutions have already tried this model, such as Udacity, which announced in May 2017 that it would launch Udacity Connect in Reno, Nevada, as a short-term training camp for three months. Students are required to come to an offline classroom for five hours of face-to-face instruction and project assignments over the weekend, and then spend the next week studying autonomously with Udacity's online course resources for about 10 hours a week. According to Udacity's introduction, Udacity Connect has the following advantages: Students can receive personalized learning guidance and increase opportunities to communicate with teachers and peers, so as to better face the problems and challenges in learning; Under the guidance of teachers, students can set teaching goals, reasonably allocate learning time and tasks, and control the learning progress and rhythm. Compared with pure personalized online learning, learners who participate in hybrid learning achieve higher completion rate and faster project completion speed. Both in terms of learning quality and learning efficiency, the hybrid learning mode represented by Udacity Connect is superior to pure online learning [2].

The mixed teaching mode is generally shown in Figure 1. The course teaching activities mainly include online MOOC learning and offline classroom teaching.

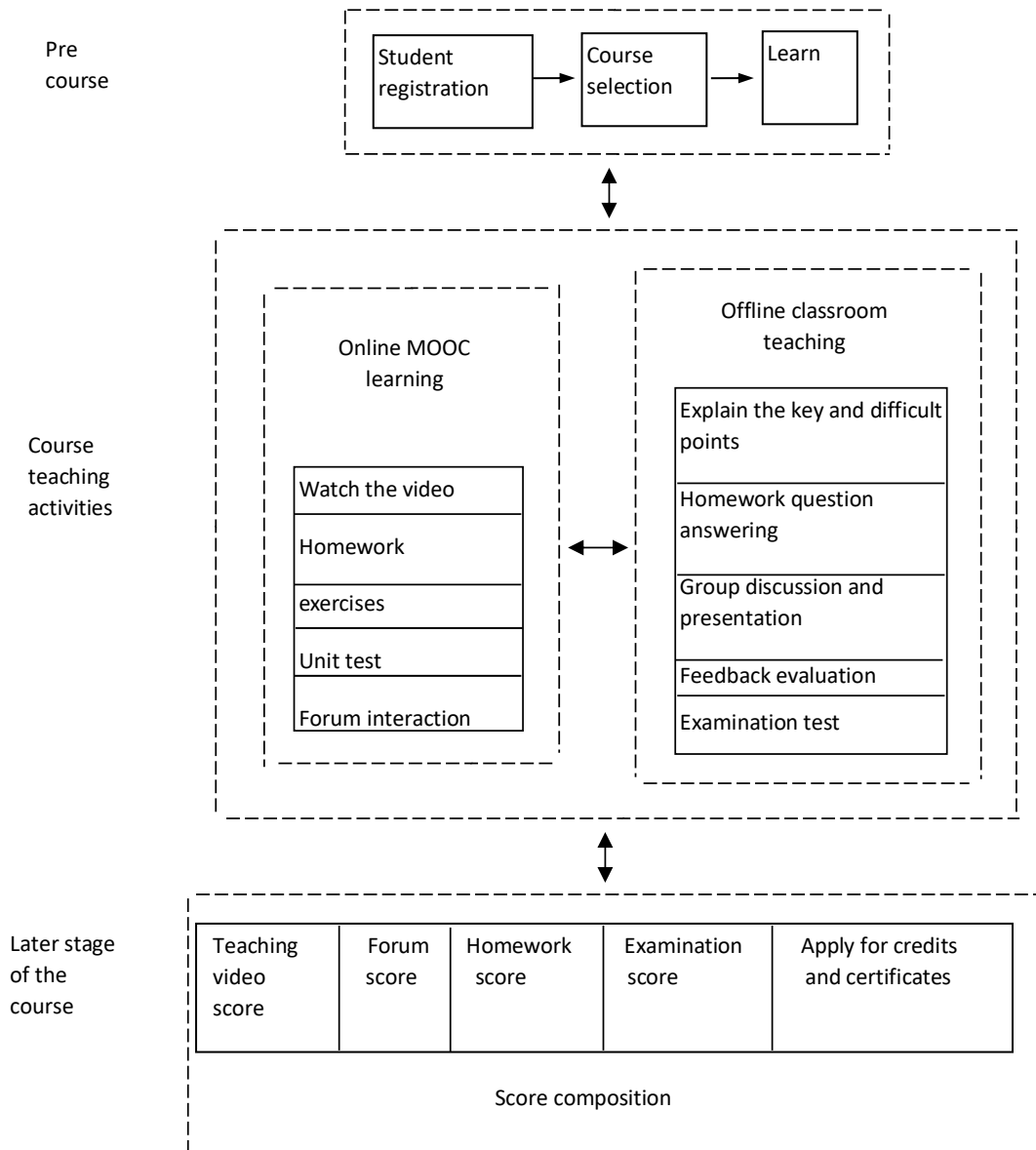


Figure 1 Schematic diagram of mixed teaching mode

(1)Online MOOC learning. According to the learning materials assigned by teachers before class, students watch the teaching videos by themselves, read the relevant materials, and complete the corresponding homework and the course learning of each test module. Students learn in groups or teams to help them understand and master knowledge. Under the guidance of teachers, students can help each other and acquire new knowledge through individual efforts.

MOOC learning platform has a forum; students can build their own online forum, through the topic discussion to start learning.

(2)Offline classroom teaching activities, including key and difficult point's explanation, homework questions answering, group discussion and presentation, feedback and evaluation, and examination and test.

In the first step, according to the content of the curriculum outline, the teacher will explain the important and difficult problems for the students in watching the video and preparing for the class. In the second step, the teacher gives students the ideas and methods of answering questions in class. The students can complete the homework independently or jointly by teachers and students, and achieve the teaching effect of comprehensive understanding in the homework solutions and knowledge points. In the third step, in the group discussion and presentation, students form a group, carry out group discussion according to the problems, cases and scenes set by the teacher, explore the problems through debate and case analysis, and display the group learning results in the form of team reports and small competitions. This collaborative learning method can enhance the cooperation between students, enhance the experience of relevance, make up for the lack of emotional communication and social connection in online MOOC, and enhance the learning effect. The fourth step is feedback evaluation. In the classroom learning stage, it is necessary to carry out multi-dimensional evaluation on whether the students have completed MOOC learning consciously before, whether they have mastered the basic knowledge points, whether they have actively participated in the group discussion, and how the team achievements are displayed through the methods of teachers' and students' comments, so as to achieve the effect of "evaluating by learning" and "promoting learning by evaluation" [6]. The fifth step is examination test. In a word, with the hybrid teaching mode, students can not only get high-quality education resources through online learning and forum interaction, but also answer questions through homework offline and participate in group discussion. The learning process is supervised and guided by teachers in the school, which effectively supplements the deficiency of online teaching.

University teachers strengthen the practice of MOOC teaching

The arrival of MOOC has not only changed the traditional teaching industry, but also changed the traditional teaching profession. In the traditional teaching process, teachers basically complete the course preparation, classroom teaching and homework correction independently, which is quite different from MOOC with the help of network platform.

In terms of teaching concept, MOOC change the traditional teaching concept and urge teachers to reflect on the process and law of teaching and learning. Based on the analysis of big data, MOOC can comprehensively track and master students' personality characteristics, learning behavior and learning process, and carry out targeted teaching. According to their own characteristics and thinking mode, students control the learning progress and put forward problems, while teachers improve teaching objectives according to the feedback from the discussion area, which promotes teachers' reflection and promotion and gives full play to the guiding role. Therefore, MOOC education is a real student-centered teaching process. Combining the advantages of traditional classroom teaching and online MOOC learning, MOOC education can not only give full play to teachers' guidance, organization and supervision, but also fully mobilize students' enthusiasm, initiative and creativity.

In terms of evaluation methods, MOOC uses an objective and automatic online evaluation system, which changes the traditional one-way teaching paradigm of "teacher teaching + student work". This not only helps to improve teachers' network teaching skills, but also helps to promote the transformation of teachers' role, that is, from the lecturer and disseminator of knowledge to the motivator and guide of learning [7].

In credit certification, credit is an important standard to recognize students' knowledge level and learning ability. Credit certification can improve the attractiveness of the course, enhance the degree of social recognition, strengthen academic exchanges between schools, and meet the actual needs of students. Colleges and universities at home and abroad have begun to actively explore the pace of credit certification. In February 2014, five Coursera courses entered the ACE credit recommendation program, and universities began to recognize these course credits. The "MOOC alliance" of Chinese universities is also actively exploring the issue of credit mutual recognition, encouraging students to choose between different schools, sharing high-quality educational resources, promoting credit mutual recognition, and shortening the educational gap between colleges and universities.

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