

## Research and Practice of Mooc Based Innovative Education in Universities under the Background of “Internet Plus”

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**Abstract:** Under the background of “Internet plus”, the emerging open education resource MOOC (Mogao) has increasingly become the focus of attention worldwide. The advantages of MOOC, the maturity of Internet and information technology, the strong attack of famous universities and the huge market demand have become the reasons for the rapid development of MOOC. Through the analysis, we can see that MOOC has certain influence on the improvement of teachers' teaching methods, the change of students' learning methods, the expansion of education objects and the improvement of higher education quality.

### 1. Introduction

With the rapid development of Internet in the 21st century, information technology has penetrated into the whole society, including industry, medical treatment, finance, transportation, tourism and other aspects. Under the background of “Internet plus”, an information revolution is also quietly proceeding in the educational field. In the information society, the Internet has the special advantages of convenience, efficiency and rapidity. It plays an irreplaceable role in the study of college students and the development of higher education in our country, and is accepted by college students in the new era. A school, a teacher, a classroom, this is traditional education; a net, a mobile terminal, millions of students, schools, you pick, teachers elected by you, this is “Internet plus education”. China's Internet plus education conference held in Hebei in June 14, 2015, the national experts and scholars discussed the Internet plus education. They agreed that Internet plus would not replace traditional education and would make traditional education glow with new vitality. Li Jingwen, academician of the Chinese Academy of engineering, pointed out at the meeting that China's education is moving towards the 4.0 era. He believed that the first generation of education takes books as the core, the second generation of education takes textbooks as the core, and the third generation of education appears in the form of guidance and cases. Now, the fourth generation of education really takes students as the core. MOOC is the result of “Internet plus” education. As MOOC enters China, especially after entering higher education, it brings strong shock to traditional higher education. Chinese universities are also paying attention to MOOC. How does MOOC develop under the background of “Internet plus”? What is the impact on Higher Education in China?(Figure 1)



Fig.1 “Internet Plus” Background

## 2. Development of Mooc

MOOC is the acronym of mass open online course in English, which is translated into large-scale online open course, and its Chinese name is MOOC. In the autumn of 2011, Professor Sebastian Thrun of Stanford University set up the course of “Introduction to artificial intelligence” online, which attracted 160000 students from 190 countries in the world to register for study, which is a real MOOC course. As the name suggests, the most prominent features of MOOC are large-scale, online and open. “Large scale” refers to the increasing number of students, because hundreds of thousands of people may register for learning at the same time for a moocchio; “online” refers to all registered people who watch videos, do homework, communicate with teachers online through the Internet and are not limited by the time and place; “open” refers to the opening of curriculum resources to all course candidates, and any learners can learn as long as they are connected to the network. The course is free and emphasizes the sharing of learning resources. At present, the largest MOOC platform mainly includes EDX, coursera and udacity.

The development of MOOC in the world began in the Massachusetts Institute of Technology in 2001. At the beginning of 2012, the computer professor of Stanford University in the United States established the udacity platform, and then coursera was also established. A few months later, Harvard University and MIT started the EDX open online education course, so far, the largest online open course platform in the world has been established. The large-scale online open courses led by the United States have brought great opportunities and challenges to traditional higher education, and Chinese universities have begun to follow this trend. In 2013, Tsinghua University and Peking University joined EDX, the online education platform of the United States. After that, Fudan University and Shanghai Jiaotong University also joined coursera, which shows that MOOC is having a huge impact on the development of China's higher education, and China's traditional higher education is facing a new challenge(Figure 2)<sup>[1]</sup>.



Fig.2 Mooc

## 3. Reasons for the Rapid Development of Mooc

### 3.1 The Maturity of Internet and Information Technology is the Primary Reason for the Rapid Development of Mooc

The primary reason for the development of MOOC is Internet technology. The development and popularization of Internet and information technology enable more audio, video and other educational resources to be quickly obtained by scholars. Various kinds of social networks also build a better communication platform for learning enthusiasts all over the world. Scholars from different countries, different colors and different ages begin to rely on the convenience of the Internet to share With learning, not only greatly reduces the threshold of online learning, but also provides a place for people from all over the world to communicate<sup>[2]</sup>.

### **3.2 The Internal Reason for the Rapid Development of Mooc is the Strong Attack of Famous Universities**

MOOC has received so much attention in a short period of time, which is partly due to the strong attack of many famous universities in the world. Since its establishment, MOOC has been actively cooperating with famous universities all over the world. World famous universities have joined the three platforms of EDX, coursera and udacity, and offered relevant courses on the platform. In addition to Stanford University, which established the platform, there are also world-class universities such as California Institute of technology, University of Pennsylvania and Columbia University. This phenomenon has appeared in every corner of the world. With the rapid development of MOOC in Europe and the United States, China also began to pay attention to and participate in it. In 2013, Tsinghua University signed a cooperation agreement with EDX, becoming the first university in China to add EDX platform, and soon launched its own MOOC platform: school online<sup>[3]</sup>.

### **3.3 Huge Market Demand is the External Reason for the Rapid Development of Mooc**

According to the data survey, American college students spend an average of 30000 US dollars a year on their studies. Such high tuition fees directly lead to a large number of students' expectation of University. However, MOOC has seen the problem of higher education and grasped the market demand. On the one hand, after MOOC registration, many first-class universities provide courses free of charge or charge a small amount of fees. Compared with traditional higher education, MOOC meets the students' desire to receive higher education from economically disadvantaged families; on the other hand, MOOC's large-scale, open and convenient features also It meets the needs of colleges and universities to expand the scale of teaching, solve the problems of insufficient resources and funds, and finds a development way for colleges and universities<sup>[4]</sup>.

## **4. The Influence of Mooc on Higher Education in China**

### **4.1 Improvement of Teaching Methods**

In the MOOC era, traditional teaching methods have been changed. Teachers in Colleges and universities in China no longer use blackboard writing or slide show to teach on the platform of MOOC. When teaching on the platform of MOOC, some of them record and broadcast videos synchronously, some of them are recorded in advance. Teachers pay more attention to group in the teaching process, and comprehensively use various teaching methods to make students actively learn, such as Flipped classroom, problem-based learning, collaborative learning, inquiry learning, hybrid learning, etc. Therefore, the development of MOOC promotes the continuous improvement of teaching methods of higher education in China.

### **4.2 Changes in Learning Styles**

Our country keeps up with the trend of MOOC, which makes the learning style of students change. In the past, students sat in a fixed classroom at a specific time to listen to the teacher's lectures or study in the library, but MOOC's courses generally lasted for four to sixteen weeks, each class lasted about two hours, and the two-hour courses were not completed at one time, but decomposed into eight to twelve minutes of video, so learners can connect to the Internet at any time according to their own time Local learning, each learning content is also based on their own interests and preferences to choose.

### **4.3 Expansion of Educational Objects**

MOOC's rich educational resources attract learners from all over the world, and the number of registered students increases year by year. As long as learners register successfully, MOOC platform can become the object of education, not affected by nationality, education background and level, age and economic situation. MOOC's education objects include not only students in school, but also employees of companies who want to keep learning and lifelong learners who are interested in

Chinese or western culture. Moreover, these learners can learn online at the same time, and the group presents a diversified trend.

#### **4.4 Improvement of Education Quality**

Chinese colleges and universities can publicize domestic high-quality courses to all online learners through adding MOOC platform or building their own characteristic platform. On the one hand, it can let the domestic learners who do not have the opportunity to receive higher education obtain these precious resources, constantly improve their own scientific and cultural knowledge, and promote the improvement of the quality of the whole people; on the other hand, on this platform, Chinese learners are easy to obtain the first-class courses of world-famous universities, while learning the domestic courses, they are also exposed to the lectures from the world-famous universities. It improves the quality of personnel training in higher education<sup>[5]</sup>.

### **5. Innovation and Development of Mooc in the Future**

#### **5.1 Strengthen the Design of Mooc Curriculum System**

Improve the way of participation in the course, and provide “Taobao mode” course services for learners. Learners can choose courses at any time according to their personal needs, combine the user evaluation to choose the best learning, use the fragmented time to attend classes at any time, and grasp the learning time independently. Strengthen the interconnection of high-quality curriculum resources between platforms, build the overall system design of MOOC curriculum, improve the integration of resources, strengthen the horizontal and vertical connection of relevant curriculum content, and support the provision of learning navigation services for MOOC participants. On the basis of enriching MOOC courses in higher education, we should also explore and seek the export of MOOC primary, secondary and vocational education, so as to promote the innovation and development of MOOC course system in the direction of diversification, multi-dimensional and quality excellence, so as to meet the learners' all-round and multi field needs for basic knowledge, skills application and upgrading<sup>[6]</sup>.

#### **5.2 Promote Big Data, Intelligent Quality Improvement and Transformation of Mooc Platform**

MOOC platform should provide intelligent services such as big data analysis, processing, mining and evaluation, which can help MOOC teachers to solve the complex evaluation process, and can also timely remind and track learners' learning, homework, assessment and other behavioral processes. The platform uses big data function to collect and summarize process information of learners, improve learning files, follow up learning progress in real time, feed back learning questions in time, and use intelligent means to push customized learning programs. Big data and machine intelligence make MOOC closer to learners themselves, which will further promote personalized learning.

#### **5.3 Establish and Improve the Mooc Credit Certification Mechanism**

Promote the development of MOOC towards standardization and quality, and establish a perfect MOOC credit certification mechanism. Standardize and broaden the scope of credit recognition, conversion and certification, strengthen credit management in the implementation process, introduce credit bank functions, establish a new path from MOOC to degree, and improve the social recognition of MOOC. The implementation of degree and credit certification based on MOOC will further meet the sense of acquisition and achievement of MOOC learning in the Internet era, so as to realize the potential of MOOC to improve the quality of higher education.

#### **5.4 Optimize Peer Evaluation and Build Learning Team**

MOOC platform should strengthen and optimize interactive activities such as forum exchange, question answering and puzzle solving, assignment evaluation, etc., so as to promote learners to maintain sufficient learning motivation for a long time. Optimize peer evaluation, effectively

promote the learners to check the missing, check the old and update, check the weak and strengthen, clear the learning motivation, and enhance the learning effect. At the same time, in the process of learning, we can set up colleague learning team, interest learning team and virtual partner learning team to solve the problem of learning loneliness. In team learning, learners gather because of the common vision. In the process of learning, they supervise each other's work and work in an orderly manner. Within the team, they share learning resources, solve learning problems, discuss and communicate with each other, and improve their learning. Each learner gains healthy and harmonious development by experiencing the learning benefits brought by the team<sup>[7]</sup>.

### **5.5 Strengthen the Evaluation Management of Mooc Learning Results**

In order to ensure the fairness and effectiveness of MOOC learning results, the platform should strengthen the monitoring and management of all links in the learning process. MOOC platform introduces audio-visual identification, fingerprint input and other technical means to ensure that MOOC learners participate in learning; introduces typing identification and other technical means to ensure the authenticity of homework, reports and mutual evaluation submitted by learners; introduces online monitoring, machine invigilation, intelligent back check and other technical means to ensure the reliability of scores in some examination links. MOOC learning should be based on integrity. Learners should truly participate in the whole process of learning, the learning results truly reflect the personal learning gains, and truly promote the fairness and justice of MOOC education through evaluation management mechanism<sup>[8]</sup>.

## **6. Conclusion**

The development trend of MOOC under the Internet plus background has been irresistible. More and more colleges and universities are joining the MOOC platform. China's well-known universities have stepped out to add MOOC platform and created online education platform with Chinese characteristics, which has a huge impact on China's higher education. Teachers have improved teaching methods, students have changed their learning methods, and the objects of higher education have been gradually expanded. At the same time, these efforts have promoted the quality of higher education in China. However, in the face of MOOC, there are both opportunities and challenges in China. In the future, MOOC still needs to be viewed with a rational perspective to achieve the goal of strengthening education in China.

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