

# Curriculum Analysis Based on Chinese University MOOC Platform

**Zhang Decheng, Chen Jinxin**

School of Information Engineering, Yancheng Teachers University, Yancheng, China

**Email address:**

zhangdc@yctu.edu.cn (Zhang Decheng ), chenjx@yctu.edu.cn (Chen Jinxin)

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**Abstract:** With the rapid development of network technology, it is inevitable that educational resources will be online and open. Since the first year of the 2012 US massive open online courses (MOOC), many countries have been committed to quality MOOC courses. As one of the three major university MOOC platforms, the Chinese university MOOC platform has been attracting the excellent courses of famous universities in mainland China and Taiwan after four years of development since its opening in 2014. This paper uses the literature method, data statistics method, content analysis method and other research methods to analyze the colleges and universities, course types, courses and contents, teaching methods, number of students selected, etc. of the Chinese university MOOC platform, and summarizes the characteristics of free resource sharing, micro-course design, learning behavior control, and interaction. It points out that there are fewer special courses in the famous schools, the repetition of courses, the lack of practical courses, the fragmentation of knowledge points, the single form of micro-courses, and the lack of depth and breadth of discussion. The article puts forward some suggestions for the school of MOOC curriculum development, the teachers who started the course, and the MOOC platform of the Chinese university. Suggestions for schools are: optimizing MOOC courses, improving course quality, strengthening practical curriculum development, multi-school collaboration and other proposals; the recommendations for MOOC course teachers are: reorganizing knowledge systems, strengthening practical applications, and improving picture quality big data analysis of students' learning behaviors and other suggestions; suggestions for Chinese university MOOC platform are: expanding platform functions, coordinating curriculum construction, big data sharing, etc. Article is intended to cause schools, teachers, and the importance of MOOC platform management curriculum development, improve the quality of MOOC courses to stimulate learner motivation through MOOC course of study, enhance the comprehensive literacy learners, play high-quality MOOC courses promote fairness in education.

**Keywords:** Chinese University MOOC, Course Type, Teaching Content, Analysis, Suggestion

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## 1. Introduction

With the rapid development of network technology, it is inevitable that educational resources will be online and open. In 2008, Dave Cormier and Professor Bryan Alexander first proposed the concept of MOOC[1]. In 2012, Stanford University, MIT, Harvard University and other famous universities have used the Coursera, Udacity, and edX platforms to provide high-quality, free and open online education resources, attracting many learners from all over the world to participate in online courses. Laura Pappano, author of The New York Times, called 2012 "the first year of MOOC" [2].

The emergence of MOOC courses has attracted the attention of countries all over the world and well-known universities. For example, France launched the national digital platform FUN-MOOC in 2013 and implemented 18 digital initiatives [3], which promoted the development of French higher education MOOC; The University of Melbourne has opened 22 MOOC courses on the Coursera platform[4].

Since the rise of China's MOOC in 2013[5], China's MOOC construction has made great progress, including Tsinghua University's "School Online", Shanghai Jiaotong University's "Good University Online", Chinese University MOOC. And the domestic basic education MOOC platform such as Ai Xuetang and C20 Mutual Union. Each platform has its own

characteristics, attracting many famous schools in China, Taiwan and Hong Kong to enter the MOOC platform, covering different courses of pre-service and post-employment, such as science, engineering, agriculture, medicine, education, psychology, etc., wonderful content, high quality micro video and interactive teaching have attracted a large number of learners to participate in learning, and have received good teaching benefits. At the same time, many scholars have carried out research on the connotation and classification of MOOC courses [6], teaching methods [7], and learning evaluation systems [8], and draw useful conclusions.

The author has set up a SPOC course on the MOOC platform of Chinese universities, participated in the multi-curricular courses of Chinese teacher education MOOC, and is familiar with the Chinese university MOOC platform. Therefore, the curriculum of the Chinese university MOOC platform was analyzed, the characteristics and problems of the MOOC course were studied, and some development suggestions were put forward, in order to attract the attention of the managers, schools and MOOC course developers of the Chinese university MOOC platform.

The purpose of the article is to comprehensively improve the quality of the MOOC course, so as to stimulate the motivation of learners to learn through the MOOC course, comprehensively improve the overall quality of the learners, and play the role of quality MOOC courses to promote educational equity.

## 2. Research Methods

The research methods used in this paper are: literature method, data statistics method, content analysis method.

**Literature:** Access to MOOC-related literature through databases such as China Knowledge Network and Springer Link to understand the current status and hot issues of MOOC research.

**Data Statistics:** Statistics on the basic data of schools, subject categories, course types, and number of students selected in the MOOC platform of Chinese universities, providing data support for research.

**Content Analysis Method:** Analyze the course syllabus, teaching content, teaching methods, teaching resources, assessment methods, and study guidance.

## 3. Overview of the MOOC Platform of Chinese Universities

Since the opening of the MOOC platform of the Chinese University on May 8, 2014, the first batch of 10 "985 Project" college courses began in late May[9]. As of July 30, 2018, a total of 219 colleges and universities, China Education Association, Vocational Education MOOC Construction Committee and other institutions have entered the MOOC platform of Chinese universities, and have established science, computer and economic management. Twelve major

categories such as engineering and engineering, as well as 1539 MOOC courses such as pre-university courses and vocational education courses, have a larger increase than the 789 courses in 2017.

**Table 1.** Statistics on the basic situation of the MOOC platform of Chinese universities.

Course Sorts	Quantity		Course Sorts	Quantity	
	2018	2017		2018	2017
Science	258	165	Foreign Language	68	24
Computer	179	93	Art Design	77	28
Economic	204	97	Psychology	24	13
Engineer	320	149	Education	101	41
Literary history	109	47	Philosophy	22	14
Biology	192	91	Law	57	27

The Chinese university MOOC platform includes two parts: web content display and background teaching management. The webpage displays announcements, scoring standards, courseware, quizzes and assignments, exams, instructional content arrangements, discussion areas, and more. Back-office management includes functions such as course management, student management, notice management, scoring rule development, teaching content management, test management, job management, forum management, certificate management, and statistical report viewing.

The MOOC platform of Chinese universities can meet the basic MOOC teaching. The functions are relatively complete, the operation is simple, the management and statistics are convenient, and the front-line teachers can open courses on the platform without special skills. In order to meet the needs of mobile learning, the Chinese university MOOC platform also provides a mobile app program to enable mobile devices to learn and manage courses anytime and anywhere.

In September 2014, the Chinese university MOOC platform launched the SPOC (Small Private Online Course) function, which provides services for the school [10]. It can also be converted into a MOOC course through one-click conversion, reducing the duplication of labor for teachers. Since the SPOC course has not been publicly released, the universities The schools and courses that use the Chinese university MOOC platform to teach are far more than 1,539.

## 4. Characteristics of the Chinese University MOOC Platform

### 4.1. Schools Were Brought Together Curriculum, Highlighting the Concept of High-Quality Resource Sharing

At present, the Chinese university MOOC platform has gathered famous Chinese universities such as Peking University (33), Zhejiang University (19), Nanjing University (31), Fudan University (9), Wuhan University (41), and Tongji University (33). Some representative courses in various schools are deeply loved by learners. Tongji University's advanced mathematics (1) the number of students selected was 251,399, making it a truly large-scale online course.

The MOOC of Chinese universities follows the principle of free and sharing. All courses can be free to participate in study and discussion, making the “everything of the world a teacher” become a reality, effectively promoting the sharing of quality educational resources and promoting the balance and development of education.

#### **4.2. Basic Courses, Humanities and Quality Courses Are Most Popular**

The top 10 courses in 2017 in the MOOC platform of the Chinese University are shown in Table 2.

**Table 2.** The top 10 MOOC courses and the number of participants in the platform.

College	Course Name	Number
National University of Defense Technology	College English (spoken)	162713
Tongji University	Advanced Mathematics (1)	153968
Taiwan Hsinchu "Tsinghua University"	Financial Management	124583
Harbin Institute of Technology	Communication psychology	94080
Taiwan Hsinchu "Tsinghua University"	Grand View and Micro: Red Mansion Dream 1-40	85773
Zhejiang University	C language programming	73521
Taiwan Hsinchu "Tsinghua University"	Peruse Zhang Ailing	62513
Zhejiang University	Zero-based Java language	61731
Harbin Institute of Technology	International exchange of English	61703
Wuhan University	History of Chinese Philosophy (Pre-Qin Part)	60652

It is not difficult to see from the data in Table 2 that there are more students in the basic courses of college English, advanced mathematics, C language programming, etc. On the one hand, these start-up schools are more famous, and students are enthusiastic about receiving high-quality higher education. On the other hand, some colleges and universities have introduced the credit certification and course certification system for MOOC courses[11], have mandatory MOOC learning requirements, recognize the academic achievements of MOOC courses, and encourage students to conduct online courses in basic courses.

Based on expanding knowledge, improving the overall quality and connotation of learners, and improving communication and communication skills, the MOOC course of humanities quality is also a course with a large number of courses, such as Harbin Institute of Technology's Communication Psychology and Taiwan Hsinchu Tsinghua University. The University's "Grand and Micro: Chapter 1 to 40 of Dream of the Red Chamber " and "Reading Zhang Ailing" have a large number of electives. In 2017, they ranked in the top ten of all courses.

#### **4.3. The Course Has a Clear Learning Goal and the Learning Requirements Are Lower than the University Course**

Each course on the platform has a course overview, syllabus, lecture plan, etc. before the start of the course, which clarifies the learning objectives, learning content, activity requirements, learning objects, assessment methods, etc. of the course, and also has a pilot course. With clear requirements, learners choose their own courses according to their own needs. However, considering that the MOOC course is aimed at the world's learners, there are significant differences in age, academic level, social background, etc. Therefore, the assessment requirements for learning are generally lower than the physical courses of each university. The main basis for assessment is the usual homework. The amount of postings in the discussion area, mutual evaluation of students and self-evaluation, etc. Even in the examination papers, it is

difficult to guarantee the authenticity of the knowledge in the case of a smooth network, not to mention the experimental links and project defenses of the university course.

#### **4.4. Systematic and Structural Reorganization of Content**

The teaching content organization in the MOOC platform of Chinese universities breaks the traditional curriculum teaching content system, and organizes content around key points, difficulties, expansion points, test sites and other knowledge points. Sometimes it is interdisciplinary and cross-curricular knowledge aggregation, which is conducive to the mastery of knowledge. And application. For example, the "Five Practices of E-teaching Literacy"[12]course of South China Normal University covers information retrieval and dissemination, courseware development, art design, teaching and evaluation, knowledge management, etc. The knowledge is wide, the volume is large, and the cases are rich. Video and video live broadcast combined teaching. June 12, 2017 on the line to July 10, 4761 attracted a large, primary and secondary school teachers and normal students attended study, September 2018 is the fourth classes, with better teaching results.

#### **4.5. The Teaching Design Features Are Remarkable, and the Courseware and Rich Text Materials Are Complete**

Many of the courses in the MOOC platform of Chinese universities have undergone meticulous teaching design, embodying new concepts such as “guidance-discovery, demonstration-imitation, situation-mating”, and guide students to learn independently through inquiry and collaboration.

The micro-video produced has the characteristics of “short and fine” [13], short time, elaborately explain a small knowledge point or process within ten minutes; content visualization, display teaching content by animation, graphic and other means; process demonstration specification, necessary With the help of TV stunts to strengthen and express; explain the essence, focus on; make beauty, give learners the

beauty of enjoyment.

The MOOC course can be used for students' self-learning or for the flipping classroom teaching of the teacher entity class. Therefore, in the MOOC course, in addition to the micro-video, students are provided with rich text materials, such as learning task lists, auxiliary reading materials, teaching courseware, etc.

#### **4.6. Mutual Evaluation, Self-evaluation and Other Evaluation Methods Are Diverse, Big Data Analysis Students' Learning Behavior**

The study of the MOOC platform course of Chinese universities requires learners to conduct mutual evaluation and self-evaluation of assignments among students under the unified evaluation rules. Bandura's theory of social learning believes that the behavior patterns that people acquire when they grow up are the result of interaction with others, and people can achieve their own behavioral corrections by watching others[14]. In the process of peer review, whether it is the party that provides the operation or the party that corrects the operation, you can learn from each other's strengths and improve your knowledge.

In order to effectively control and stimulate students' learning, in addition to normal tests and homework, some courses have also designed multiple-choice questions and judgment questions in the micro-video teaching. Students can continue to learn after answering, and timely "extract" through knowledge, promote effective learning for students.

In addition, the MOOC platform of Chinese universities provides learners with in-class discussions and discussion forums. Students are required to ask questions, think positively, answer questions from teachers and classmates, and answer questions through teacher-student interaction and interaction. Study together and grow together. According to the data provided by the Chinese university MOOC platform, as of July 30, 2018, 2,337,700 teachers and students spoke on the MOOC platform. In the background management of the course, the time of the student's login learning, the number of questions answered, the amount of posting, the test situation, etc. are recorded, so that the teacher can grasp the learning situation and learning behavior of the student, adjust the teaching content and the teaching progress.

## **5. Problems in the MOOC Platform Course of Chinese Universities**

### **5.1. Less Elite Special Courses**

Learners choose courses with certain purposes and psychological expectations. In addition to expanding knowledge and improving their ability, it is also an important factor to have the opportunity to receive education from famous universities at domestic and foreign, to understand the development of cutting-edge frontiers, and to feel the learning content and atmosphere of famous schools. However, from the courses offered by universities in the MOOC platform of

Chinese universities, the first-class disciplines and first-class courses of famous universities are not well reflected, and there are fewer special courses. For example, the MOOC course offered by Beijing Foreign Studies University is the Principles of Accounting. The largest number of students in English (spoken language) is the National University of Defense Technology. The MOOC course offered by the Fourth Military Medical University is "University Computer - Fundamentals of Medical Computing".

### **5.2. Duplicate Construction of MOOC Courses**

The courses offered by the Chinese University's MOOC platform are more frequent, especially in some university-based courses. For example, the material mechanics course with the same course name is opened by nine universities including Southwest Jiaotong University, Harbin Institute of Technology, and Northeastern University. The Analytical Chemistry has five universities including China University of Geosciences (Wuhan), Northeastern University, and Dalian University of Technology. "University Computer", "University Computer Foundation" and other similar courses, there are 17 MOOC courses in Southwest Jiaotong University, Shandong University, National Defense Science and Technology University, Tongji University and other universities, and the repeated construction of MOOC courses is obvious.

### **5.3. Practical MOOC Courses Are Rare**

Experiments are important courses for students to test knowledge, accumulate experience, and cultivate innovative abilities, including verification, comprehensive, and design experiments. Among the courses of the Chinese University MOOC platform, 33 courses have "experiments" and 19 courses have the word "practice". The MOOC courses in science, engineering, medicine and computer are mainly based on the course overview and learning objectives. For example, the "Anatomy and Clinical" of Wuhan University is divided into 22 parts to explain[15], Beijing University of Technology "Analysis of Typical Problems in University Physics - Vibration, Wave and Optics". In the course introduction, "... By summarizing the basic concepts, basic knowledge and principles, explaining typical problems, helping students to correctly apply concepts and formulas, and grasping the ideas and methods of solving problems. To do the same thing, to touch the analogy." [16] Professional experimental, practical MOOC courses are rare.

### **5.4. Knowledge Is too Fragmented**

Considering that learners' attention time is generally less than 10 minutes, foreign research on micro-video in MOOC through big data shows that the micro-video within 6 minutes can basically be read by the students, so in the micro-video development of MOOC course. Most developers process and process knowledge by fragmentation. Sometimes, micro-videos are "short and fine" by speeding up the speech rate or even omitting intermediate links. In some MOOC

curriculum development, because of too much attention to “micro”, some knowledge points The division is finer and smaller, some people artificially cut the knowledge points, and the micro video produced is only 2-3 minutes. Some videos omit some necessary processes and steps for short, giving students a sense of incoherence and jumping. sense.

### ***5.5. Micro-Video Production Is Mainly Based on Screen Recording, and the Form Is Relatively Simple***

The video is very popular among learners because of its intuitive image and strong expressiveness. The MOOC course production in the MOOC platform of Chinese universities has concentrated on the strength of the school. It has done meticulous work from the aspects of art design, visual development of courseware, animation design, etc., and the overall effect is good. However, from the point of view of the production method of micro video, the screen recordings of the demonstration PPT, Prezi and other courseware are mainly used, and there are few interactive coursewares, not to mention the courseware such as animation and virtual hosting.

Some scholars believe that the teacher does not need to appear in the micro-course, so it reduces the production of portrait shooting, keying, picture overlay, etc., and improves the production efficiency of micro-video. In fact, in addition to the practical teaching methods, flexible methods, and vivid and interesting language, the teacher's personality charm is also an important aspect. Because students have long-term confrontation with computer screens without emotional interaction and communication between teachers and students, students often have emotions. Lost, thus affecting the learning effect.

### ***5.6. Problem Discussion Is Superficial, Lacking Substance***

The discussion of the problem is a major feature of the MOOC course. Students and students grow up and develop together through research and discussion. However, from some of the courses in which students answer questions, many of them still do not break through the Chinese-style "blanking ball", "copy-paste", "people cloud and cloud" cycle, lack of focus and knowledge innovation.

## **6. Suggestions for the Development of MOOC Platform Courses in Chinese Universities**

### ***6.1. Advice to the School***

- (1) Maintain national interests, seize the right to speak in Chinese education, and develop representative MOOC courses.

The MOOC course is oriented to the world. The curriculum not only represents the image of the school, but also represents the interests of the country and the future of the country. Harvard University's courses are well-known in the world. Some courses involve millions of people, which inevitably increases the influence of Harvard University around the

world. On the other hand, it is also a cultural invasion. Some courses instill western life. Views, values, and impact on the traditional culture of the nation affect the value judgment of the educated. Therefore, Chinese universities, especially some prestigious schools, in the development of MOOC courses, in addition to considering suitable for networked teaching, large-scale audiences, schools that develop MOOC courses must carry forward the mission of China Education and Chinese national culture, from the national strategic level. Choose strong disciplines and superior courses with their own characteristics and characteristics, improve the influence of the school in the world, and enable learners to love Chinese culture and love Chinese education.

- (2) Build a MOOC course R&D team to improve the development environment and create a high-quality MOOC course

The development of MOOC courses requires not only educational experts, excellent lecturers, but also courseware, video development, and production staff. Team members need to work together to complete the development of MOOC courses with high quality. Schools should do a good job in top-level design, and provide policy support for the evaluation of teachers' titles, and provide necessary funds and personnel for the development of MOOC courses. At the same time, the school should create good equipment conditions for the development of MOOC courses. In addition to the basic conditions of lighting and sound insulation, it is necessary to update the micro video production equipment such as HD cameras and handwriting boards according to the development of science and technology, so that teachers can develop MOOC efficiently and with high quality. course.

- (3) Strengthening the practice of experimental MOOC curriculum construction

Due to the particularity of the experimental practice course, students need to “do high school” to master the necessary knowledge and practical ability. The number of students selected is not too many, and large-scale effects cannot be realized. Therefore, in the development of MOOC courses, universities often ignore The development of experimental practice MOOC courses. In fact, the experimental practice teaching forms are diverse, video real shooting, animation display, virtual experiment, etc. have a good complementary effect on experimental practice teaching. Conditional schools can increase the input of experimental practice MOOC courses, using video, animation, Virtual experiment and other methods are used to carry out experimental practice teaching, and show the experimental process for schools and students without experimental practice teaching conditions to maximize the overall quality of students.

- (4) Multi-school collaboration to build a MOOC course

In response to the repeated construction of the MOOC course, each school can collaborate to build a MOOC course. In particular, the experimental and practical courses can be arranged in a nationwide sub-region. On the one hand, it constitutes a strong curriculum teaching team, improves the quality of the course construction, and builds a domestic first-class The course will make China's MOOC courses go to

the world; on the other hand, it can reduce the disharmony factors among schools, and provide students with real experiments and practical opportunities through the experimental practice teaching points scattered throughout the country, thus effectively improving students' learning, quality and learning outcomes.

### 6.2. Advice for the Instructor

- (1) In the information age, a single course knowledge cannot solve all the problems encountered in teaching. As the teacher and manager of MOOC course, teachers should study the characteristics of MOOC. On the basis of rational optimization and organization of teaching content, it is necessary to find problems and solve problems in the course group, and pay attention to the application and innovation of knowledge.
- (2) The instructor should select the teaching strategy and teaching method that suits the network distance teaching according to the audience object. At the same time of the micro-teaching teaching, live simultaneous live broadcast is also an important method to strengthen the interaction between teachers and students. It is necessary to develop corresponding learning task orders. Teaching resources such as supporting materials.
- (3) It is an era of viewing pictures. It is an era in which content is king and practical is king. Courseware development should be illustrated and visualized. The selected pictures should be consistent with the theme, avoiding a large number of texts moving and reading PPT teaching.
- (4) Strengthen the development of test questions, and make full use of software such as Storyline, iSpring Quiz Maker, Adobe Captivate, etc. to develop interactive tests that can provide timely feedback, provide test questions analysis, strengthen encouragement, etc., and improve test reliability. And validity.
- (5) The questions raised by the teachers in the discussion link must have a certain depth and breadth. It is necessary to have a high-level teaching team to answer and respond to the students' questions and discussions in a timely manner.
- (6) Teachers should be able to use the big data managed by the background to analyze, master the learning dynamics of students, and adjust the teaching content in time.

### 6.3. Suggestions for the Chinese University MOOC Platform

- (1) Strengthening the construction of MOOC platform in Chinese universities and expanding platform functions

Personalized interface: Open different courses on the MOOC platform of Chinese universities. The interface styles and function modules are all the same. Even the best content will be aesthetically exhausted. It is recommended to develop the personalized customization function of the website, allowing different schools and different users to customize the interface and modules. Adapt to the needs of different groups

of people;

Increase the survey function: Only by mastering the students' learning needs and learning purposes can teachers select content and conduct on-demand teaching in a targeted manner. Before the start of many courses, teachers send questionnaires through emails and special survey websites such as questionnaires. Cross-platform use and data statistics bring a lot of trouble.

Add live video: Video interaction and other functions to build remote face-to-face communication and interaction.

Provide learners with records of learning behaviors and promote self-awareness: At present, the Chinese university MOOC platform only provides the records of the last study, and the students' own postings and assignments cannot be pushed to the students.

(2) Drawing on the expansive functions of the MOOC platform such as Coursrea and edX, it adds personalized functions such as DNA and circuits to different disciplines such as biology and physics.

- (1) Coordinate planning courses and coordinate school relations. The Chinese university MOOC platform can systematically plan and design the curriculum, guide the school to select the course, select the same nature, the same content of the course can be screened, or coordinate the relationship between the school teaching team, collaboratively build MOOC courses, build a nationwide, And even high quality courses worldwide.

- (2) Big data sharing. The big data of the Chinese university MOOC platform is selectively and regularly released, which is convenient for schools and teaching teams to use big data for research and decision-making.

## 7. Conclusion

In short, after 4 years of development, the Chinese university MOOC platform has achieved outstanding results, contributing to the equality and balance of higher education, and has made great contributions to higher education in China and the world. However, there are still some problems in terms of curriculum, education reform, teaching quality, and service scope. It is hoped that the colleges, teaching teams, and Chinese universities' MOOC platforms will strive for excellence, keep pace with the times, foster strengths and avoid weaknesses, and train more outstanding and innovative talents for the society.

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