



Research on the characteristics of MOOCs teaching model construction based on human-machine interface

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Abstract: Starting from the theory of "learning and teaching" and "learning environment" of constructivism, this paper integrates information technology means with course content, and makes an important discussion on the teaching mode and realization conditions of MOOCs with learners as the main body, learners' independent learning as the core, the network as the platform, and international communication as the channel. MOOCs based on human-machine interface is causing higher education workers to reflect on higher education in our country.

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In social development, people's social needs and scientific and technological innovation promote each other, and human social needs promote technological change and scientific and technological innovation. Scientific and technological innovation meets people's spiritual and material needs, and also changes people's ways of learning, living and working. MOOCs is produced under the appeal of scientific and technological innovation and people's needs. With the help of powerful network technology, MOOCs spreads excellent courses from superior schools in the world in the international cyberspace. Learners can choose courses independently according to their actual needs and even get credits from schools requiring certification. "Cyberspace is not just a breakthrough in electronic media or computer interface design, because of its virtual environment and simulated world, cyberspace is also a metaphysical laboratory, a tool for testing our reality in the true sense of the word." [1] MOOCs based on the man-machine interface in cyberspace seems to have the same purpose as the "open course" and "online course" proposed by our country, so that more people can accept the learning of excellent resource courses, but the dissemination scope and dissemination content level are obviously different. On May 23, 2013, China Youth Daily reported that "MOOCs have officially entered the formal higher education system." What is MOOCs, why can it enter the university higher education system, and even some people expect it to become a driving force in China's higher education reform. The rapid rise of MOOCs in China has made scholars and educators engaged in higher education rethink the nature of education, the purpose of learning and the role of university

education.

1. Theoretical basis for MOOCs teaching model construction

"Mooc" is a product which coincides with the development of network technology and the internationalization of education. In English, "MOOC" is Massively Open Online Courses, which are massively open online learning (MOOCs). It was first proposed in 2008 by Stephen Downes and George Simmons, who argued that "MOOCs are, first and foremost, an extensible, diverse collection of content provided by a number of relevant subject-specific experts, educators, and subject teachers into a central knowledge base, much like a website." What is unique about these collections is that they can be 'reassembled' - all the learning material is not necessarily stacked together, but linked through MOOCs [2]." Early MOOCs are essentially more like a large resource library, where everything will be presented, and we can combine it at will, but this seems to be very difficult, so it did not attract social attention until 2012, until the end of 2012. The American Council on Education has included five courses offered by top universities on Coursera platform into the credit recommendation program of the American Council on Education, and the credits obtained by students in these courses can be recognized by the corresponding universities, which has changed the teaching mode that students must obtain credits and recognition through education in the school. It is to receive independent learning of different courses around the world in the network platform, and obtain the credits they need.

Based on the learning mode of MOOCs under the

human-machine interface in cyberspace, the teaching mode of constructivism is still adopted. Constructivism holds that "knowledge is not acquired by teachers, but by means of meaning construction with the help of others (including teachers and learning partners) in a certain context, that is, social and cultural background, in which learning is the process of acquiring knowledge." Bruner, a famous educational psychologist in the United States, said, Students should be rewarded with their own discoveries, because the best motivation for learning is to have an intrinsic interest in the material itself. He stressed the importance of learning interest itself to learning, as long as there is a need for learning people will demand knowledge acquisition. MOOCs also meets the needs of learners for independent learning. They can choose their favorite and interesting courses from the three international MOOCs platforms Coursera, Udacity and edX, and pass the assessment through group discussion and collaboration, so as to cultivate students' innovative spirit and ability. MOOCs takes the constructivism theory of "learning and teaching" and "learning environment" as its starting point, integrates information technology means and course content, takes learners as the main body, learners' independent learning as the core, network interaction as the platform, and international communication as the channel of teaching. Independent course selection -- situational creation learning -- independent learning exploration -- online interaction and collaborative discussion -- online testing and evaluation -- Obtaining credits. Anyone can choose the relevant courses offered by the school independently according to their own needs in the three platforms, and then enter the courses with prescribed credits and hours. The teachers integrate various information means such as video, teaching, field scenes, and simulation into the courses through various technical means, and deliver them to any learners with independent learning needs in the world through machine interface. In the open platform, all learners who choose this course can discuss and research from time to time, collaborate to complete the discussion of a certain topic or theme content, and finally complete the prescribed course content through the online test, and can obtain credits, laying the foundation for further study. At this point, you have completed the four links of "situation", "collaboration", "conversation" and "meaning construction" proposed in the learning environment of constructivism, so "MOOCs" is still based on the learning theory of constructivism. MOOCs under constructivism meets the needs of college students, researchers and all kinds of people with lifelong learning needs who have independent learning, free and open learning quality learning resources, the creation of learning situations, and the promotion of learners' active thinking.

2. Characteristics of MOOCs teaching model construction

"MOOCs" Massively large-scale, Open, Online and Courses. It is massively open and open. It is open to all people in the world who are interested in learning this course, no matter what your knowledge background is, you can become a learner after registering. It has aroused the love of many learning lovers. In 2011, Stanford University professor Sebastian Silan put his graduate-level AI course on the Internet, attracting some 160,000 students from more than 190 different countries to enroll. [3] Coursera has more than 2 million students enrolled in 200 courses, while edX and Udacity have a total of about 500,000 students enrolled in 23 courses and 19 courses, respectively [4]. The opening of hundreds of courses in mathematics, music, history, physics and other disciplines provides students with equal opportunities to access world-class university courses and systematic in-depth learning, which breaks the limitations of traditional education. In May 2013, Tsinghua University and Peking University simultaneously announced a contract with edX to expand the online education model, and Peking University joined Coursera platform later. In July, Fudan University and Shanghai Jiao Tong University also announced deals with Coursera. Following the four courses launched on September 23, three more courses from Peking University will be launched on Coursera on September 30. On October 17 and 18, two courses of Tsinghua University will be officially launched on the edX platform [5]. On the edX platform, courses of Peking University have been accepted. According to statistics, the course "Electronic Circuit" is the most popular, and the number of registrations has reached 3,700 [6].

MOOCs are not conducive to those learners who need guidance, and for experienced learners, there are obviously active course abilities and degrees, and their course passing rate is also high [7]. After clarifying their goals, learners based on active learning can choose courses to learn on the MOOCs platform, which has its own unique characteristics compared with traditional teaching methods.

2.1 The advanced content and diversified teaching methods of MOOCs under human-machine interface

Lu Fang, vice president of Fudan University, said: "In the face of 'MOOCs', the traditional education model is being challenged. "Moocs are not about sharing high-quality resources, but about teaching reform, exploring new teaching models, and more importantly, improving our teaching quality [8]." All of the courses offered to the world in MOOCs are carefully crafted by a team of teachers who use every skill to rework the syllabus and determine the content. Teachers should be relatively skilled in the teaching

content, and the teaching content should have the advanced nature of the world, it can not be a copy of the traditional curriculum. At the same time, the teaching content needs to be processed more, tens of thousands of people are listening to the same course, if you follow the text, presumably your course will not be patronized, but also will post to comment on you. Therefore, MOOCs that can go abroad require teachers to re-reflect on their own teaching, to design courses completely from the perspective of students, and to withstand repeated consideration of each knowledge point and its logical relationship. In the different situations where teachers record the corresponding machine and teach the real students, it is more necessary to process the content, so that students can feel the interest of learning knowledge not in the real class. After careful treatment by the teacher, a class of intensive teaching content is presented through the machine interface to the lovers of the course around the world. In the face of machine-recorded teaching methods, so that students from all over the world can accept and enjoy the content of the lecture, it is indeed not an easy task, but also shows that the courses that can enter the scope of MOOCs also feel extraordinary.

In the course "Justice" taught by Professor Sandel of Harvard University, theories and knowledge points are connected with different cases, and the feedback effect of the course is excellent. In edX, I saw the course "History of Chinese Architecture" of Tsinghua University in the school I joined. After viewing the video, I saw that the teacher led the students to enter the regions with different architectural styles and gave lectures in reality, which changed the way that only pictures or videos could be seen in the traditional course, and also made the online learning learners feel the richness and vividness of the course content. Similarly, in the course of Folklore of Peking University, we not only heard the teacher's vivid explanation, but also could see the forms of different folk cultures, which greatly increased the capacity of the course and expanded the scope of knowledge. If teachers are too embarrassed to put their lessons online if they are bad, MOOCs are asking more teachers to deeply rethink their teaching style.

2.2 The relative independence of MOOCs knowledge structure and the popularization of learners under human-machine interface

Each course in the curriculum system presented by the teaching plan of each major in the four years of university has a logical relationship and sequence, and each course has a certain core position in the talent planning training. Students learn according to the order of public basic courses, professional basic courses and professional compulsory courses. The curriculum in MOOCs is very different, there is no link between the courses, there is no sequence of learning. It is precisely

because of the popularization of the teaching object and the limitation of the man-machine teaching form that the relative independence of the teaching content is determined, and the knowledge system of each course taught should be relatively independent, so that it can be suitable for large-scale online learning of many people. Since the knowledge structure and foundation of learners are different, the optional courses need to be re-set by teachers in MOOCs to make the teaching content acceptable to learners with or without foundation. In this way, the courses provided in MOOCs are relatively independent course content. MOOCs, as a relatively new way of social education, changes the mode of teaching and learning, in which the dissemination of the teaching content of excellent courses is an important bottleneck. The large scale of MOOCs can range from hundreds to tens of thousands or even hundreds of thousands of people are learning the same course and accepting the ideas and views of well-known professors, so the quality of the teaching content plays a crucial role. Therefore, MOOCs can also promote and promote teachers' attention and discussion on teaching forms and teaching contents.

In the research, it is found that MOOCs learners are mostly college students or those who are about to enter college, and other groups are various social professionals who are engaged in lifelong learning. There is a huge number of learners registered worldwide without any geographical restrictions. Coursera has been established since January 2012. By the beginning of September 2013, there were more than 4.647 million registered learners, including 437 online courses. It builds a ladder for learners with independent learning needs and abilities [9].

2.3 Human-machine interaction and learning collaboration in open teaching environment

MOOCs open teaching enables most learners to have the right to choose courses independently. Moreover, it enables learners from all corners of the world who are interested in this course to study a course together according to their own learning progress and learning content, regardless of time and place restrictions. As long as there is an Internet, they can enjoy the courses of the world's top universities anytime and anywhere. In this sense, the openness and equality of subject teaching in the world can be realized. The open teaching environment enables learners to conduct independent learning and free exploration. Various information resources such as explanation, text materials and live-action teaching are provided to enable learners to understand and clarify knowledge points in human-computer interaction. In addition, the course questions are set and discussed through group cooperation and support. The learning mode of human-computer interaction and group discussion and collaboration can cultivate students'

autonomous ability, and realize teacher-machine-learner, learner-machine-learner, learner-machine-teacher interaction and collaboration.

3. The thinking of MOOCs on higher education in our country

Based on the human-machine interface MOOCs is causing higher education workers in our country to think, whether this model can bear the heavy responsibility of credit certification course learning, how many people in our country are accepting MOOCs learning, the effect of learners will be what? MOOCs has indeed triggered the reflection of higher education in our country, and now our college students are passively learning in the teaching plan of the four-year prescribed curriculum formulated by the school. At the same time, students do not have the recognition of learning responsibility, and even the current college students do not attend classes, skip classes and substitute classes are quite serious. The reason for this phenomenon is that students lack interest in studying courses and go to university for the sake of going to university. MOOCs put forward such a reflection on whether it can break through the limitation of linear courses and enable students to choose courses independently according to their interests and career needs.

MOOCs is promoting the global wave of large-scale learning, but also to meet the needs of different learning individuals personalized learning, which makes people of different ages and different educational backgrounds can accept the course learning, but the spread in China is affected by language. MOOCs and China University Video Open courses are free to the public through the Internet. Qian Yingyi, dean of the School of Economics and Management of Tsinghua University, called China's Central Television University, which was founded in the late 1970s, "version 0.0" of online education, and the online open courses that began in 2000 "version 1.0". In recent years, the online education represented by "MOOCs" is "version 2.0" [10].

The age of MOOCs has arrived in 2012. How do traditional institutions of higher learning cope? Can we break through the traditional teaching concept? How can we respond to this change in education and realize the internationalization of higher education? The teaching form of MOOCs under the human-computer interaction interface has triggered the reflection on the traditional teaching, and it is worth our continuous close attention to the research and practice.

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