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The Hybrid Teaching Mode Design Combining MOOC and SPOC

Meng Li
College of Information and Communication
National University of Defense Technology
Xi'an, China 710106

Na Zhang
College of Information and Communication
National University of Defense Technology
Xi'an, China 710106

Kang Yi
College of Information and Communication
National University of Defense Technology
Xi'an, China 710106

Wenhui Hao
College of Information and Communication
National University of Defense Technology
Xi'an, China 710106

***Abstract*—With the development of the Internet, there are some online classes, MOOC is a representative of online education, this education model is very popular compared with the traditional education model. This online teaching is more convenient, so we should better integrate this education model into the traditional education model. However, it also needs a medium to integrate traditional MOOC classes. This medium is SPOC, which can combine online and offline teaching and effectively to improve the efficiency and quality of classroom teaching. It is a general trend of education development to combine the two.**

Keywords—MOOC; SPOC; blended teaching

I. INTRODUCTION

Massive Open Online Course (MOOC) is a new form of online course based on course and teaching and web and mobile intelligent technology. In 2012, after "the first year of MOOC" was launched, MOOC rapidly heated up around the world, and its platform construction surged. First, the top American universities and their professors successively founded several MOOC platforms, including Udacity, Coursera and edX, and became MOOC leaders, attracting many top universities from many countries to join in. Followed by some countries in Europe, Asia and Australia scrambling to create your own MOOC platform, high-profile MOOC wave also generate new fusion — Tsinghua university in China released a massive open online course platform "Xuetangx.com" to provide online courses worldwide. It will make for the world's leading Chinese large-scale online education platform for taking advantage of online education development.

II. ACHIEVEMENTS AND PROBLEMS OF MOOC

11 EU countries launched the pan-European MOOC plan "(pan-European MOOCs initiative), by the European union for distance education university (EADTU) to take the lead, with the support of the European commission (European Commission) created OpenupEd platform, trying to set the whole of Europe in the MOOC market compete with the United States. In addition, Khan Academy, which mainly serves middle school students aged between 14 and 18, and ALISON in Ireland and Open2Study in Australia, which aims at vocational training, have also developed rapidly.

Along with the upsurge of platform construction, the number of online courses and users also advances by leaps and bounds. As of December 2013, Udacity has launched 33 courses in five disciplines, with millions of users. With 557 Coursera courses across 25 disciplines and 12 languages including English, Chinese, French and Russian, Coursera has registered more than 5.8 million students and offered 125 English-language courses in 25 subjects, with a million users.

MOOC are expected by governments. British universities and science minister David Willetts hope Future-Learn platform to create to maintain the status of UK higher education in the global competition, U.S. President Barack Obama wants MOOC this "the tide of innovation" to keep the high quality at the same time reduce the cost of education. Genevieve Fioraso, minister of higher education of France, announced the establishment of the "digital university city", hoping to develop the national MOOC platform with the open source code of edX. China's ministry of education is also promoting the development of MOOCs in China in terms of policies, funds and platform construction. "Twelfth five-year" period, the education ministry will support the "project 985" colleges and universities take the lead in construction and promote the use of 200 or so Chinese university MOOCs courses, in national fine-designed course sharing system (network) love course online, through MOOCs class construction and use of the Chinese universities, promote the teaching reform of colleges and universities, provides the high quality course for the society and the Shared resources.

The mass adoption of MOOC means there is an opportunity to create a new, fairer model of education. With the Internet, through MOOC platform course lectures video, embedded course testing and evaluation, online interaction

between teachers and students, teaching and learning can take place at anytime and anywhere, teachers can teach with the world's talents and students with the world's famous teachers. Traditionally, the meaning of "teacher" and "student" and the relationship between teachers and students have undergone unprecedented changes, and the concepts of "school" and "classroom" have also been redefined. For thousands of years, we have been dreaming of the educational form, and the educational ideal of Confucius, the educator, seems to be coming true due to the transfer of educational technology. Harvard, for example, has registered more MOOC in one year than in all of its 377-year history. In 2012, 10,000 students from 113 countries received a certificate of completion from the university of California, Berkeley.

However, with the massive growth of MOOC platforms, online courses and student enrollment, the rapid increase in the number of courses has led to the crisis of quality and quantity. The research and practice in the past two years show that there are some problems to be solved in MOOC for both the online course providers-universities and the receivers- students. Peter E Sidorko from the university of Hong Kong compares the advantages and disadvantages of MOOC (see "Table I"). It can be seen that "no prerequisite" and "no size limit" are both advantages and limitations of MOOC for students and universities. Without prerequisite, the knowledge base of students is uneven, which not only damages the confidence of students in learning, but also affects the enthusiasm of teachers in teaching, and becomes an important reason for the high registration rate and low completion rate of MOOC. Critics say the 5% completion rate is not that great, because the enrollees are mostly learners with good online social skills, not everyone. Online education, which is completely free for students, is seen by universities as a huge burden, with the cost of producing courses, paying teachers and using platforms often making it difficult for less prestigious universities to sustain and develop. In addition, the teachers of the platform and their teaching methods do not fully conform to the concept of MOOC. FutureLearn, for example, the platform in just ten months' time is filled with a course, but many online courses teaching idea still is one of the traditional, but are reprocessed in fresh ways of existing material, based on the cognitive way of learning is still in the lead, behaviorism and constructivism study habits have not been playing and expand. Claims to provide the best education in the world do not always materialize, as some universities are careful not to push their own established academics on to the screen, often with less well-known teachers. Similar phenomena exist in courses on other platforms.

TABLE I. THE ADVANTAGES AND DISADVANTAGES OF MOOC

The advantages of MOOC	Students	no prior condition; no size limit; open; free; students-led
	Universities	fulfill the mission of the university; low cost; potential rewards; huge amount of student learning data
The disadvantages of MOOC	Students	no size limit; no formal credit certification (only course completion certificate); no teacher-student interaction; evaluation
	Universities	no prior condition; evaluation; academic integrity; platform problem

Therefore, in the current MOOC storm, it has not been seen that top universities around the world have clear strategic goals and plans for the development of MOOC. Most universities look at MOCC as they go, feeling their way. What are universities desperate to achieve with MOOC? Can it be a significant measure for universities to improve the quality of education and enhance their international competitiveness? Is it to promote the curriculum globally, compete for global students, and serve the global learners, or to improve the teaching quality of our school? How to balance MOOC courses? Professor Armand fox, of the university of California, Berkeley, points out that MOOC currently have little impact on the university's physical curriculum, which should have been the university's original goal and starting point. Perhaps that's why some of the world top universities, such as Harvard and the university of California, Berkeley, are starting to move beyond MOOC into a smaller, more sophisticated class called SPOC.

III. SPOC — THE NEW ERA OF ONLINE EDUCATION

A. Concepts and Types of SPOC

SPOC is short for Small Private Online Course, which literally means "small, restricted online course." The concept is believed to have been first used by professor fox. Among them, small and private are relative to massive and open in MOOC. "Small" means the size of students is usually dozens to hundreds. "Private" means that there are restrictive entry conditions for students, and only those who meet the requirements can be included in SPOC courses.

Combing through the current SPOC teaching cases, it is found that the current SPOC is mainly set for the students inside the fence and online students. The former is a mixed learning mode that combines classroom teaching and online teaching. It is implemented in the classroom of university campus by using the lecture video of MOOC (or at the same time using its online evaluation and other functions).

The basic process is as follows: the teacher assigns these video materials to the students as homework, then answers the students' questions in the physical classroom teaching, understands what knowledge the students have absorbed and

what has not been absorbed, and processes the homework or other tasks together with the students in class.

In general, teachers are free to set and control the course schedule, pace and grading system according to their own preferences and students' needs.

The latter is to select learners of a certain size (usually 500) from global applicants to be included in SPOC courses according to the application conditions set. Candidates must ensure that the study time and study frequency, participate in online discussion, complete the required homework and examination, etc. Unsuccessful learners can register for online courses as auditors.

For example, watching lecture video, learning assigned course materials at your own pace, doing homework, participating in online discussions, etc. However, they are not able to receive instruction and interaction from the teaching team and will not be awarded any certificate at the end of the course. Below this paper uses the case of a few universities to undertake detailed analysis.

B. Analysis of Teaching Cases

1) Harvard University SPOC experiment: In 2013, SPOC experiments were performed on three Harvard courses. The first is a 12-week "Copyright" course is offered by the law school on the edX platform. The course requires applicants to submit personal demographic information and write a short essay explaining why they are applying and what they can do. They are expected to study no less than eight hours a week and participate in 80 minutes of online discussion each week. In the end, Professor William fisher et al. selected 500 students from 4,100 applicants around the world to attend Harvard's online class Online Classroom. The course modelled on a traditional Harvard law class, divides students into teams of less than 25, with former graduates or current students serving as assistants to professor, and organizes discussions among the team members. At the end of the course, online students take a three-hour exam like traditional Harvard law students, and those who pass receive a certificate of completion and a written evaluation. Due to good response, the course will be launched again next year.

The second SPOC course is the Kennedy school of political science's "Central challenge to U.S. national security, strategy and media. Challenges of American National Security Strategy and the Press: An Introduction). This introductory course begins with SPOC forms are available to both students on Harvard's campus and 500 online students. Online students are required to submit written assignments about the U.S. government's response to the conflict in Syria, as well as their academic credentials. The finalists range from Harvard students who are not able to attend school to home learners and professionals. They watch video outside of class, read about 75 pages of literature a week, complete all assignments, and participate in topic discussions organized by the ta, online student discussions, and student discussions on Harvard campuses. At the end of the course, students meeting the course requirements are granted Harvard certificates 3.

The third one is the school of design for the new school graduate student to open the "imaginary" architecture (The Architectural Imaginary) SPOC course is expected to be open to more people in the future.

2) SPOC experiment and promotion at University of California, Berkeley: "Software engineering" is a branded course at the university of California, Berkeley, taught by professor fox on the edX platform and available to students on the Berkeley campus in SPOC mode. Students on and off campus are required to perform the same tasks online, but students on campus are required to create software for real customers. A key feature of this SPOC course is its automatic scoring feature. Students submit complete programming assignments or configure complete applications in the cloud, where detailed ratings and more granular feedback are immediately available. This is far more detailed than the feedback from traditional teaching assistants, who tend to stick to each assignment for only a few minutes. In addition, the automatic scoring function allows students to submit multiple assignments, which improves their knowledge and skills while gaining higher scores.

As a result, the fox team moved its SPOC model to four other universities in the spring of 2013 (see "Table II"). A survey of four teachers showed that all had watched Berkeley's MOOC video before class, three had used MOOC tests and two had used MOOC automated grading assignments. A teacher flipped the classroom, asking students to watch the MOOC video after class and have discussions in class.

TABLE II. INFORMATION ON "SOFTWARE ENGINEERING" COURSES AT THE FOUR UNIVERSITIES

University	Students	Elective/compulsory	Time	Form	Teachers
Binghamton University	freshman sophomore	Elective	14 weeks	Team	Rose Williams
Hawaii Pacific university	senior	compulsory	15 weeks	Independent	Samuel Joseph
University of Colorado	junior senior	compulsory	16 weeks	Team	Kristen Walcott Justice
North Carolina University	freshman sophomore	compulsory	15 weeks	Team	Richard Ilson

After one semester, SPOC courses in four universities have achieved obvious results:

- The automatic scoring function reduces the burden on teachers and strengthens the test-driven development concept of software engineering courses;

- The information content of the course lecture video is rich and dense, and students can pause and review any knowledge point, so it is a very efficient way of information transmission;
- Students are excited to be exposed to the latest technologies in software engineering (Rails) and the most cutting-edge development methods (Agile);
- This course brings challenges to outstanding students that are not found in other classes;
- Students receive world-class instruction through lectures (video) and are challenged by the same courses offered by Berkeley's top computer science program.

IV. CONCLUSION

The greatest effect of technology on education should be to immerse students in an environment where technology is an intermediary, but they can't feel the existence of technology by using technology, so as to focus on "learning" instead of "technology" itself. If MOOC have given us a spectacular revolution with a grand narrative, SPOC is a quiet revolution. The shift of discourse from MOOC to SPOC shows that people's understanding and expectation of MOOC are increasingly rational. Harvard University professor Robert boldly pointed out that SPOC has replaced MOOC and is now entering the future. Some people in the field of online education think, SPOC is just a fashion concept, its connotation is not new concept, even think as early as in the 1990s, and such concept has been applied, but was referred to as online curriculum at that time. Although opinions are different, the correlation between MOOC and SPOC is indisputable. In fact, before the MOOC, fox and others were looking at Ebooks — inexpensive 400-page digital textbooks with more information than 12-week video lectures — as a way to extend their courses to more universities. As a result, fox sees the future of the new online education paradigm more as a combination of Ebooks and SPOCs, because they are free and synergistic. EdX, in conjunction with Stanford university and the university of California, Berkeley, has introduced SPOC as part of an effort to move MOOC toward credit certification and a more rigorous evaluation mechanism.

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