

New Exploration of Deep Integration of Information Technology and Education Teaching

—Based on the Practice of MOOC Teaching Mode

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Abstract: The integration of Internet information technology into education teaching is the solution of the insufficient and unbalanced development in education teaching of higher education in China. Therefore, we try to obtain learning data of students and analyze in interview, questionnaire and platform based on the teaching of MOOC, and results show that: on one hand, most students like and accept this kind of teaching mode; on the other hand, the self-management and independent learning ability, the guidance, supervision and discussion of teachers are two elements influencing the implementation of the teaching mode. This paper concludes the elaborate teaching resources in this teaching mode, advantages of individuality and disadvantages of weakening discipline management in teaching process, believes that in this teaching mode, teachers improve themselves when improving students, and students plan actively and take their own responsibility of learning, thus the practice of cooperation between teachers and students enhances the teaching quality.

1. Introduction

With the concept of “Internet+”, many scholars engaged in education teaching have been explored continuously, in the integration of information technology and education teaching, put forward open online course, micro-lesson, flipped classroom, MOOC and SPOC, application object changing from basic education to higher education, from part-time education correspondence teaching to college students in full-time education. In January, 2018, combining the insufficient and unbalanced education teaching of our country, the Ministry of Education launched for the first time 490 national open online courses. The Ministry of Education and Department of Higher Education have pointed out the construction of MOOC to advance the teaching reform of colleges, which indicates the development direction of education of various colleges in our country. As Lenin said: “The world will not wait for people. People must satisfy themselves with actions”. Therefore, we provide corresponding measures according to characteristics and problems presented in the application of MOOC to actual education teaching so as to offer reference for the integration of information technology and education teaching.

2. Basic situation of teaching mode and curriculum

2.1 The connotation of teaching mode based on MOOC

The so-called teaching mode based on MOOC, from the perspective of technology, is the curriculum integrating information technology, Internet and subject content; from the perspective of application, with the aid of MOOC resources and platform, teachers and students accomplish discussion and exchanges of theory knowledge, test and test results, and the teaching process do not rely on physical classroom any more. In other words, teachers set teaching content such as excellent micro video (from themselves or other people) of knowledge, knowledge test and assignment according to time nodes and post those to students. Then students watch videos and materials, raise questions, get preliminary answers from teachers, and accomplish teaching content independently. Finally, according to the proportion set before the class by teachers, the platform record studying data and calculate final grades of students. On the MOOC, teachers and students have different

limits of authority. Students can learn teaching videos, know well how much knowledge they have grasped and raise questions. Whereas, teachers can have a clear understanding of learning progress and questions, based on which, they can remind students to finish online learning, and assist offline physical classroom (in-depth discussion and exchanges between teachers and students).

2.2 About the curriculum

Public elective course is an important part of talent development program in colleges in our country. According to the situation of our college, we have tried many Internet elective courses, make adjustments based on actual situation of students in the implementation and finish three-stage teaching. In the first two stages, curriculum is set fully according to MOOC, whereas, in the third stage, the first nine chapters and corresponding test, assignment, discussion and examinations are included in the assessment, the rest of content being excluded from final assessment as elective content. Offline classroom teaching is not set in the first two stage, however, in the third stage, the face-to-face physical teaching is added in the beginning of this semester to help students register and login the curriculum, at the same time, QQ group is established for curriculum services.

3. Analysis of survey data processing

Table 1 shows basic data of elective course in three stages. We have conducted interview and questionnaire on students and learn data from curriculum platform to promote their study more effectively and improve the teaching quality, analyze their learning feelings and discover problems in the process of learning.

Table 1 Basic situation of students

stages	Total number	Number of students in test and assignment	The percent of completion (number of finishing/total number)	The percent of pass (number of pass/total number)
Stage 1	163	103	63.5%	46.2%
Stage 2	34	14	40.0%	54.5%
Stage 3	106	72	67.6%	32.8%

3.1 Results of interview

From the data in Table 1, it can be observed that the number of students is not very stable. Therefore, we interviewed nearly 100 students in groups in different grades. After learning the causes and analyzing the interview results, we found that the number of students in the elective courses fluctuates mainly because this course lacks face-to-face exchanges guidance and related binding forces; Then compared with other courses, the content of this course needs continuous active attention and learning; Finally, students are not accustomed to this learning mode. Students said that they often forget to participate in the unit test at a limited time during the learning process, and they are worried that the final grade is not qualified.

3.2 Results of questionnaire

Students who participated in this mode as the subject, we use the Max platform to set questionnaires at the end of the semester to conduct research. The questionnaire content is mainly to learn the recognition and acceptance of this mode and the degree of difficulty in their mind. The results of questionnaires are shown in Figure 1. From left to right, it is the percentage of students who think it is very easy to hard or they love it to dislike it. Among them, the number of students who love and like this teaching method reaches 90% and 1% of the students pointed clearly that they do not like it; 94% of the students accepted easily and accepted this teaching method, and no one said he or her cannot accept it; 80% of students thought it was very easy, easy and not so difficult, and 16% of students thought it was difficult and very difficult, which means that the vast majority of students believe that this teaching method is not difficult to implement. From the above data about three aspects, we can conclude that on one hand, students who have actually participated

in this learning model not only do not reject it, but most students are willing to accept it; on the other hand, most students think that this learning mode is not difficult and the degree of difficulty only reaches the general level; and thirdly, most students like this teaching mode. In short, students accept this teaching mode.

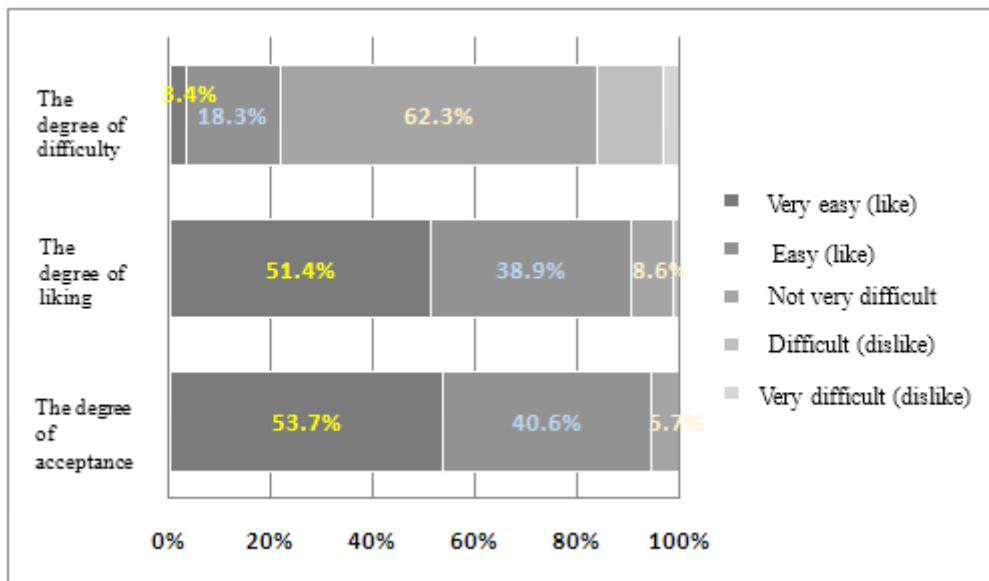


Figure 1 Results of questionnaire

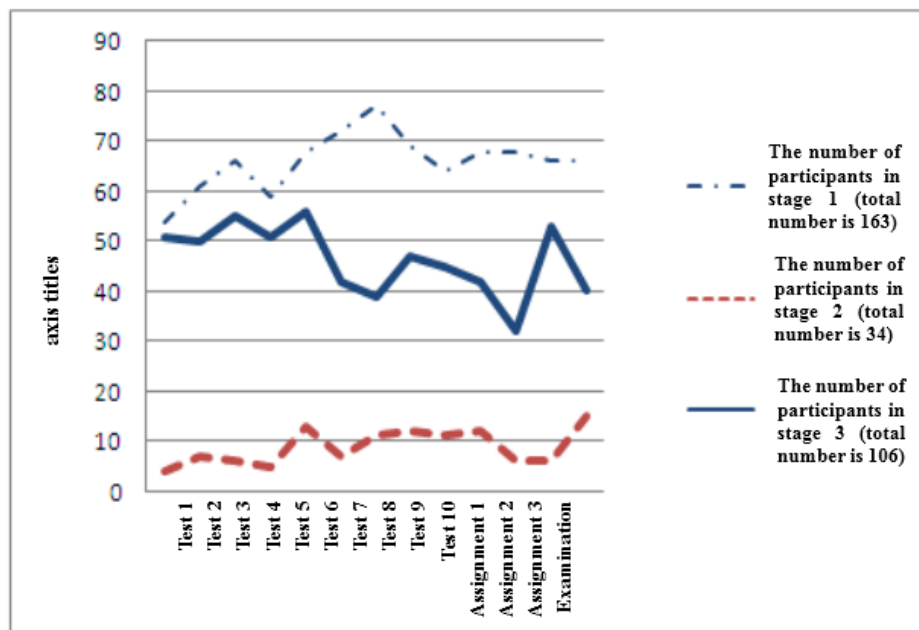


Figure 2 Completion results of tests on MOOC

3.3 Analysis of learning data

First, self-management and self-learning ability of students. The completion of the subject of students in the third stage of this course is shown in Figure 2. In completing unit tests, assignments and examinations, due to the unstable number of participants, the development trend cannot be shown, but the number of participants in the three different tests is different. The number of the students involved in learning is relatively less stable than the traditional teaching where students take part in tests or assignments. From the interview, we also found that in the absence of direct external constraints, students' self-management skills and self-learning ability have a greater impact on SPOC or online learning. Students with good self-management skills and self-study ability can adapt quickly and consistently to the end of the course. Conversely, students who lack

self-management skills and self-study ability need appropriate direct external constraints to better complete the course in the integration of information into teaching.

Second, the influence of caution and exchanges of teachers for students. The percent of completion and pass of student learning are shown in Figure 3. The rising or falling trend of two rates in the third stages are not the same. Instead, the highest completion rate in the third stage but the pass rate is the lowest, and the highest completion rate in the second stage but the completion rate is the lowest

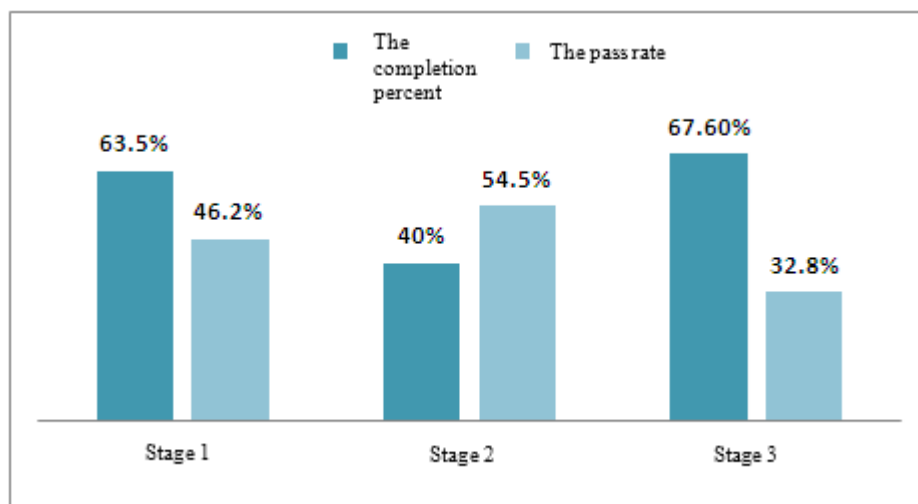


Figure 3 The completion and pass rate of learners

The reason, on the one hand, is today with convenient information sharing, students will inevitably communicate with each other about the difficulty of the course, which may lead to fluctuations in the number of students. Combing the research on the cooperation in the learning process in the previous questionnaire, as shown in Figure 4, more than 60% of students do not often cooperate with other students in the learning process. Therefore, they cannot carefully and patiently insist on completing each unit test, assignment, and exam. In addition, the writer also mentioned that there is almost no supervision and guidance from face-to-face physical classroom, which naturally causes the results.

On the other hand, it is also caused by caution and supervision of teachers, because in the first two stages, students learn fully by themselves, however, in the third stage, QQ group was established and teachers can remind students to complete related content according to time node in the group, but lack of the exchanges between teachers and students. Therefore, the completion rate is the highest in the third stage, but the pass rate is the lowest.

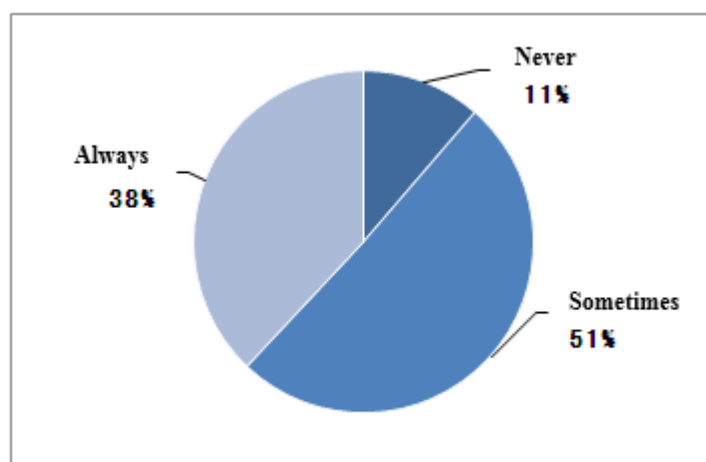


Figure 4 The cooperation of students

4. Advantages, disadvantages and measures of the implementation of MOOC

From the practice and results of research, the writer thinks that based on teaching effects of MOOC, we should fully realize advantages and disadvantages of the teaching mode, optimize the practice from teachers and students, deepen the integration of information technology and teaching so as to reach the implementation of new teaching concept with the center of students' development and learning and achievements, conduct reforms on existing teaching mode, and realize the purpose of "supply side" and "overtaking" in education.

4.1 Advantages and disadvantages of blended teaching of online and offline based on MOOC

Based on the practice and research on the teaching mode, we have found that the advantages outweigh disadvantages in the new teaching mode than traditional teaching mode.

On the one hand, advantages are shown in three aspects. Firstly, the teaching resources of the teaching mode is finer than traditional teaching. Secondly, the implementation realizes the individuality of students in the process of learning. Thirdly, it meets students' requirements and improves the teaching quality and effects. On the other hand, disadvantages are presented in weakening the management of learning discipline to students, but at the same time, requiring students to have consciousness. Thus, in the teaching mode, probably teachers and students cannot adapt to it in the beginning, especially teachers lower the requirements and standards of the course unconsciously. However, the seriousness of examinations cannot be weakened by lowering requirements and standards. Teachers and students need time to adapting to the new teaching mode from the original mode they have been used to.

4.2 Teachers are not required to adapting to the society passively but to win the future positively.

In the online and offline teaching mode based on MOOC, the service and management of teachers in the teaching process are emphasized, which determines teachers are organizer, the leader, and the learner, interlocutor, and researcher to learn with students at the same time. Therefore, teachers can not only passively adapt to society, but need to take the initiative to accept and grasp the characteristics and specific methods of MOOC learning in order to effectively guide students to carry out curriculum learning, so as to win the students and win the future.

First of all, in online teaching activities, guided by the quality of MOOC learning, and based on characteristics of MOOC, teachers use a variety of online statistical learning tools to analyze students' individualized learning patterns and then conduct targeted guidance. To be more specific, teachers make full use of information technology and student resources, guide students to complete network registration, use modern technology to guide online learning, analyze students' online learning data and summarize existing problems and answer questions in the interaction part.

Secondly, in the offline physical classroom, teachers should be good at tapping the great advantages of the classroom in interaction and problem-solving, and abandon the traditional teaching model, to evaluate the students' online learning effects, organize discussion in groups, answer questions, design classroom inquiry situations, promote students' rational cognition and internalization, organize students to carry out inquiry learning activities, and provide individualized or universal guidance according to questions to strengthen the guidance of students' value.

4.3 Students are not required to accept passively but to take the initiative to plan and manage their own learning.

In the blended online and offline teaching mode based on MOOC, students learn independently under the guidance of teachers, however, the effectiveness of teaching relies on the learning of students to a large extent. The cooperation and participation of online and offline learning have a direct influence on the teaching effects of the course. Students shall be equipped with the following abilities in the teaching mode:

1) Students need to have the skill of informatization, which is the basic quality students should have in the blended teaching mode. In this way, students can register in online learning, have access

to teaching resources based on the Internet, participate in online discussion and interaction, and the technical links and processes based on network testing and assessment can be ensured to be successful.

2) Students need to have strong self-management skills and self-study ability. Students must change from passive learning to self-learning, from relying on teacher teaching to self-exploration of knowledge, and from the “audience” in classroom to active participants in classroom. Students should establish a learning awareness of acquiring knowledge and information actively, clarify their own learning goals based on their actual situation, formulate and implement learning plans, and positively seek solutions for problems, conscientiously and honestly complete their self-learning.

3) Students need a strong ability to select, reflect, integrate, and internalize knowledge and information. Among the skills above, some students have those in the beginning, and they only need to be properly guided and enlightened by teachers. But some need caution and supervision from teachers, and some can gradually acquire those form their own continuous learning and practice. Therefore, when adopting this teaching mode, students can not only acquire corresponding knowledge, but also improve their own learning ability, which can be achieved based on the transformation from passive learning in traditional reaching to active teaching.

In short, the full understanding the pros and cons of this teaching mode and being good at the initiative of teachers and students, can improve the quality of education teaching in practice and effectively solve the problems of insufficient and unbalanced development of education in our country, and our nation has the right to speak in the world higher education and keep in the leading position.

5. Conclusion

From the initial introduction of MOOC, to gradual exploration in entering in colleges in our country combining characteristics of our nation, the author combined the application experience and student learning data, put forward MOOC-based online and offline teaching method, which is popularized by university students after the 95th. But in the actual application process, this mode has many advantages and benefits, but teachers and students must be proficient in applying this mode to truly achieve these advantages and benefits. Teachers and students also need to improve continuously the abilities in various aspects in the mode, which can be achieved gradually in the practice, and the author will conduct exploration incessantly.

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