Exploration of Blended Teaching Mode Reform Based on MOOC -------Taking Advanced Mathematics as an Example

Ma Wenting, Yao Lijuan

Nanchang Institute of Science and Technology, Nanchang, China

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Abstract: With the deepening of national education reform, the application of MOOC in the curriculum of colleges and universities also increases, which has a significantly positive influence on improving the teaching quality and efficiency of college courses. However, in previous teaching, impacted by traditional teaching concept, many teachers fail to give full play to its positive function in MOOC teaching, and teaching and teaching quality is greatly affected, which is not conductive to the implementation of teaching. This paper conducts a research on the reform of blended teaching mode based on MOOC. With the research on curriculum of advanced mathematics, the teaching staff can correctly recognize problems in current work, actively adjust their work direction and concept, realize the stable improvement of teaching quality and promote students' comprehensive development.

In the 21st century, more advanced teaching concepts and means have been developed and applied, and MOOC, as an important composite of current teaching, receives the focus and popularity of teaching staff. With the development of current China's information technology and Internet, more and more colleges and universities strengthen the popularization of electronic teaching equipment. In order to better satisfy the requirement of *National Medium- and Long-term Plan for Education Reform and Development*, further promote the development of education informationization, colleges and universities shall strengthen the development and application of education resources, optimize its development, better promote the development of network learning curriculum in constructing network teaching resource system, and realize the effective innovations on network teaching mode. Advanced mathematics, as one of professional curriculum in colleges and universities, not only has an important influence on students' logical thinking, also can realize the improvement of students' problem-solving ability. Therefore, teachers shall pay attention to this teaching method. Whereas, in recent years, with the increasing enrollment scale of national colleges and universities, obvious changes and problems occur in higher education. In the face of various challenges, advanced mathematics, as basic curriculum in colleges and universities, is inevitably impacted. Thus, due to the requirement of brand new education, it is necessary to conduct teaching reform on advanced mathematics.

1. Problems in Current Teaching of Advanced Mathematics

1.1 The disjunction of theory and practice

Under the background of improvement in China's Internet, the teaching content of advanced mathematics and social demand also significantly develop. The research significance of knowledge points involved in teaching is not strong, and the class hours for advanced mathematics, the basic link of higher education is less, which results in the negative effects of knowledge acceptance. Especially in final-examination, the number of student failing exams is staying at a high level, which seriously impacts the improvement of teaching quality [1]. In addition, due to the relatively insufficient teaching resources, the knowledge learnt cannot be reasonably applied in work, or students cannot effectively respond to problems in work, which brings many negative impacts.

1.2 The large difference between students and low teaching efficiency

Influenced by basic national conditions, after decades of Chinese development, China's overall education cause develops significantly, however, the nation has invested immeasurable financial and resources and vigor in education. At the same time, the difference in economic development between regions, so there is also obvious difference in the education of student source. These problems have seriously negative impact on the development of advanced mathematics and the stable improvement of teaching quality [2].

1.3 Students' lack of independent learning resources after class

The goal of setting advanced mathematics is to provide more practice-oriented and applied professional talents. Advanced mathematics requires higher students' practical ability. However, teachers fail to analyze students' actual situation in assigning tasks so that students will be constrained greatly in independent research [3]. In this way, the teaching objective of advanced mathematics cannot be achieved.

2. The Necessity of Applying MOOC in Advanced Mathematics

In the development and transformation of education mode, China's higher education has gradually realized the transformation from elite education to mass education [4]. Influenced by characteristics of this discipline, in previous teaching, the teaching method of advanced mathematics is relatively single, where generally teachers give class and students passively accept knowledge, which easily causes the decline of students' interests in learning. Thus, how to actively involve students in teaching of advanced mathematics is the key problem to be studied and focused by teachers. In addition, teaching materials of advanced mathematics is still the product of traditional education, which cannot effectively satisfy the brand new teaching requirements. In modern society with constantly improving computer technology and Internet, the development of information technology provides vast development space for advanced teaching, and comprehensively enhances students' interests in learning. It can been said MOOC teaching overcomes the drawbacks of traditional teaching mode to a great extent and optimizes traditional blackboard teaching, so as to better perform teaching surrounding one knowledge point by the aid of multi-media [5]. At the same time, due to the shorter period and less content of MOOC teaching, compared with diversified characteristics of knowledge points in traditional teaching, the content of MOOC teaching is more concise and refine. In terms of advanced mathematics, the usage of MOOC is flexible, so that students can preview contents before class, review knowledge after class at any time and discuss with teachers and students when they have problems. In this way, the consolidation of students' mastering knowledge points can be realized and social development requirements can be fully met by teaching. In short, due to limited classroom time of advanced mathematics and plenty of knowledge points to be studied and mastered by students, the application of MOOC can realize the stable improvement of learning efficiency and quality in a short period. Classroom teaching can be performed at any time, without the constraints of region and time, and students can learn independently according to their actual conditions [6].

3. The Measures to Build MOOC Mode in the Teaching of Advanced Mathematics

With the continuous development and improvement of China's Internet technology, the function of a brand new network course teaching mode, MOOC is more significant, which not only has a great influence on traditional teaching method, also receives the attention of Chinese educational departments. In this way, the research on building MOOC mode in advanced mathematics is a necessary work.

3.1 To arrange MOOC teaching mode in advanced mathematics course

During current MOOC teaching, teachers mostly instruct knowledge points through network platform so as to solve related problems [7]. In this teaching mode, student can complete

independent learning by the aid of learning software. Then teachers conclude and optimize problems and experience of students in learning through network platform, and discuss and analyze with students by various ways, which is also the mostly commonly used teaching method of MOOC.

In terms of this teaching method, it can be found that the role of teachers in advanced mathematics changed dramatically, not directors of classroom any more, but the organizer and guide in classroom. Students can also more actively study through network platform, not simply listening or memorizing knowledge any more, but recording their own problems at any time in learning, so as to put forward problems and study with teachers and classmates to obtain more learning opportunities and space [8].

3.2 To optimize MOOC teaching mode in advanced mathematics course

In order to better enhance the teaching effect, the construction of MOOC teaching mode of advanced mathematics can be divided into different stages, the formulation and arrangement of teaching contents before class, students' preview, research and discussion of problems in class, and teachers' answering students' questions, respectively. First of all, in teacher's formulation and arrangement of teaching content before class, teachers need to clarify the key and difficult issues in the course teaching, to strengthen the adjustment of the classroom structure in producing MOOC. In this way, the MOOC covers more knowledge points and enhances the vividness of classroom teaching [9]. In the selection of teaching methods, teachers also need to adjust the teaching methods for the requirements of advanced mathematics and the actual situation of students, to better improve the quality of teaching by combining handwriting board and multimedia. Second, in students' preview, students can conduct targeted preview or practice based on their actual mastering of knowledge, make a small video of problems they encounter in the study or upload the questions directly to the MOOC system. In this way, teachers can accurately understand the actual problems of students, so as to explore students' problems in a concentrated manner in the classroom. Third, in terms of research and discussion of problems, teachers can explain knowledge points in MOOC videos to satisfy students' curiosity and learning requirements. Finally, teachers' answering of students' questions can not only help students to realize self-improvement, also has a significant influence on students' consolidation of knowledge, which shall be stressed by students and teachers. In a word, the application of MOOC in advanced mathematics is to build a harmony platform for the communication between teachers and students, and encourage students to feel the charm of advanced mathematics by mobilizing their learning initiative, so as to realize the stable improvement of teaching effect when inspiring students' interests in learning [10].

4. The Significance of MOOC in the Curriculum Reform of Advanced Mathematics

In the teaching process of higher education, advanced mathematics courses are an important basic course. Because the teaching modes and methods are relatively simple, students often feel boring in the process of actual learning. In general, teachers actively teach students, however, but the absorption of knowledge by students is not ideal. The appearance of these problems has also significantly improved the teaching difficulty of advanced mathematics course. Therefore, to conduct the reform on blended teaching mode based on MOOC is the key problems to be stressed. Through the research, the reform of this curriculum can be strengthened.

Firstly, the application of MOOC in advanced mathematics can realize the stable improvement of teaching quality and effect. Besides, teachers shall consider MOOC as an important teaching means in classroom teaching. In this way, teachers are transformed from traditional teaching concept and mode. The large quantity of teaching time saved can be used for curriculum research and scientific exploration, so as to provide great assistance for the improvement of students' interests in learning and the transformation of students' independent consciousness.

Secondly, in the teaching of advanced mathematics, MOOC has a profound significance for students to study whenever and wherever possible. Meanwhile, students' knowledge is greatly expanded, which is important for students to overcome disadvantages and their independent

learning.

Thirdly, MOOC can adjust teaching programme according to different demands of different majors, so as to formulate more targeted curriculum system and teaching plan, which can also better realize the effective utilization of teaching resources.

Fourthly, MOOC has a significantly positive influence on the stable improvement of teachers' teaching level. In applying MOOC, teachers can explain key and difficult points, guide students to be involved in curriculum evaluation through network. This way can not only help students grasp more knowledge points, obviously improve teachers' professional level, and play a considerably positive influence on improving teachers' classroom teaching and students' comprehensive quality.

5. Conclusion

To sum up, China's educational reform has been deepened for many years and obtained significant development in actual teaching, however, there are still some detailed problems to be solved in many educational links. For instance, the education problems in advanced mathematics in colleges and universities seriously impact the stable improvement of teaching quality and efficiency. Therefore, it is necessary to reform advanced mathematics based on MOOC teaching mode. This teaching method can adjust plans according to students' actual conditions, and in targeted education and guidance, comprehensively enhance students' ability of analysis. In this way, the transformation of students' traditional learning method can be realized, and the positive and efficient function of MOOC in teaching can be played, to lay a solid foundation for improving the quality and efficiency of China's higher education.

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