

Practice and Exploration of Deep Integration of Information Technology in Advanced Mathematics under the Background of Golden Course Construction

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Abstract : In the era of rapid development of information technology, the teaching content and form of colleges and universities in our country also keep pace with the times. This paper takes advanced mathematics as the analysis object, and puts forward some suggestions on how to integrate information technology in advanced mathematics under the background of golden course construction, in order to promote the smooth development of advanced mathematics teaching activities to provide a certain reference.

Keywords : Advanced Mathematics; Information Technology; Integration; Golden Course Construction; Information Teaching

With the rapid development of information technology, big data, unmanned driving and artificial intelligence are quietly changing human life. Great changes have taken place in the teaching mode in the field of education. MOOCS, live online classes and online teaching are not new things. The new education mode has got rid of the shackles of the traditional teaching method. Students do not have to study in the classroom. This flexible feature is liked by teachers and students. The high-quality teaching resources of information network should benefit more people. Now and in the future, teachers need to have the ability of information-based teaching. Teachers should adjust their teaching methods, teaching methods and teaching strategies in real time according to the specific situation, make full use of teaching resources to communicate with students, and improve students' learning ability, so as to create a high-quality "golden class".

1. Problems in the teaching of advanced mathematics

1.1 Teaching methods are relatively backward

There are significant differences between advanced mathematics and other courses. It is systematic, abstract and rigorous. Most of the contents involved are mainly applied in computational reasoning. Students feel that it takes a lot of time to learn this course. At present, the teaching methods adopted by teachers are very similar. The teaching mode of teachers as the main body and the relatively small degree of information correlation are relatively small. Therefore, advanced mathematics urgently needs an interactive teaching method to transform abstract knowledge into concrete, so as to help students understand the abstract knowledge and save time. In the past, college teachers used multimedia courseware and computer projection to complete the teaching work. This form of teaching in the information technology and application is only a drop in the bucket, because the teaching effect is not ideal, and it is difficult to form a benign interaction between teachers and students, so it is difficult to achieve the goal of building "golden class".

1.2 Teachers' comprehensive quality needs to be improved

The popularization of "Education Informatization 2.0 Action" has gradually increased the level of informatization education in colleges and universities. However, it will take a long time for university teachers to understand and use information technology, which directly affects the application of information technology. The main reasons are as follows: among the college teachers, the experienced teachers are older, they have not fully understood and mastered information technology, and they are slow to accept new things, so they still have some difficulties in using information technology in teaching. And some young teachers, they accept

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information-based teaching faster, but lack of teaching experience; they can produce gorgeous teaching courseware, but there are some deficiencies in explanation. Finally, the school also has a lot of reasons, colleges and universities do not pay enough attention to information-based teaching, less training, and many teachers cannot really apply information-based teaching. In a word, due to various reasons, advanced mathematics cannot realize the information transformation. With the opening of Education 3.0 era, it is urgent to create “golden class” and improve teachers’ comprehensive quality.

1.3 Slimming of teaching content

Reducing class hours is one of the important measures of teaching reform in colleges and universities. Therefore, it is necessary to reduce classroom teaching content, use information network teaching means, and present part of the content to students’ autonomous learning in the form of network course. The teaching content of advanced mathematics needs to be slimmed down. In mathematics concept, we should not emphasize the rigorous demonstration process too much, let students understand the essence and value of mathematics, in order to master the basic theory, strengthen the basic operation ability, and master the thinking method of higher mathematics, for improving the ability of solving problems, and cultivating scientific spirit and creative thinking. Therefore, to create “golden class” needs to be solved as soon as possible. Due to the lack of class hours, the teaching content needs to be reduced accordingly.

2. Construction path of “golden course” in advanced mathematics under the background of informatization

2.1 Using network teaching platform to solve the problem of slimming teaching content

To solve the problem of slimming teaching content, it is necessary to use information network teaching means, such as expanding online resources, using multimedia means, using network teaching platform to strengthen the effective interaction between teachers and students, optimizing the assessment mechanism, etc., to carry out online and offline mixed teaching mode, and combine the latest teaching means with traditional teaching mode. The teaching quality can be improved by reducing classroom teaching content and implementing online and offline mixed teaching. It saves time with teaching interaction, teaching and learning are achieved, and the diversity of learning content is increased, so as to meet the different needs of students, and stimulate students’ learning motivation.

2.2 Using network teaching platform to strengthen teaching interaction

Teaching interaction is an efficient way to improve the teaching effect of advanced mathematics. Due to the large number of high mathematics class, teachers cannot take care of each student, and many factors limit the benign interaction between teachers and students. The network teaching makes up for this phenomenon to a great extent. Students can arrange their time in a personalized way and carry out fragmented learning. On the other hand, teachers upload the teaching resources needed by advanced mathematics to the class group on the network platform, which is beneficial to students’ learning. Through the functions of group live broadcast and flipped classroom of the network teaching platform, teachers carefully design the interaction links after class, such as key and difficult point analysis, self-test question discussion, question and answer question, topic discussion, question and answer interaction, comment, homework after class and question answering at any time, which can activate the classroom form, activate the classroom atmosphere, and shorten the distance between teachers and students. Teaching quality and quantity achieves the goal, improve students’ learning initiative, and use the platform data to timely grasp the students’ learning status and learning effect. At the same time, the use of network teaching platform for students’ questions, using voice question and answer, picture answer, live broadcast explanation and other forms, in various platform classes and private messages at any time to answer questions and solve doubts, solve the difficult points in students’ learning in time, and improve students’ learning efficiency. Without the information network teaching platform, it is impossible to achieve a high degree of interaction. Through the benign interaction between teachers and students, it is very helpful to create “golden class”. “Eliminating water courses” and “creating gold courses” are the most important tasks of undergraduate education and teaching in colleges and universities in the new era, as well as the most important task of advanced mathematics teaching.

2.3 Building a new evaluation system to improve teachers’ quality

The traditional teaching mode and education system have been unable to meet the needs of the transformation of advanced mathematics in the new era, so it is extremely necessary to construct a new teaching evaluation system of advanced mathematics. The innovation of teaching evaluation system should be to change the traditional single evaluation system and establish a comprehensive evaluation system. For example, changing the evaluation system that the final score determines everything,

increasing the proportion of ordinary performance, and focusing on the usual performance, so that teachers can better understand the specific situation of students, and make diversified teaching evaluation on the two parts of students' written test and usual score. The written examination results cover the students' regular simulation and mid-term (final) examination results, while the usual scores involve students' attendance, class participation, autonomous learning results of some contents of platform MOOC, chapter test, self-test questions, topic discussion, homework, etc. Teachers need to be proficient in the network platform, and improve their comprehensive quality and high-quality teaching.

2.4 Auxiliary application of new media

Information teaching should make full use of the media in information teaching. For example, when explaining the concepts of limit, derivative, definite integral, double integral, etc., do preview before class. Students can watch MOOCs on the platform of learning pass and wisdom tree, and understand what they don't understand. Then, in the offline classroom or online live classroom, teachers take the most basic concept system as the outline, pay special attention to the introduction of the main concept background, and gradually transition from intuitive analysis to strict mathematical expression to deepen understanding. Using the information function, in-depth explanation of theory and thought method, training calculation, combining with practice, pays attention to application. For example, combining the knowledge points with the reality of life, introducing the love story of Descartes' heart-shaped line into the knowledge of arc length of plane curve to arouse students' interest and enthusiasm in learning. With the rapid development of network science and technology, we should make good use of the advantages of online learning and teaching, reasonably design online and offline flexibly, and change the inherent offline form of the semester. Do a good job of online and offline teaching convergence, guide students to self-learning, online interaction between teachers and students, to form the habit of online and offline integrated learning. We should adhere to the fundamental task of moral education, integrate value building, knowledge teaching and ability training, and cultivate students' ability to apply mathematical theory knowledge and solve practical problems, so as to stimulate students' innovative potential. With the help of new media, we can create online, offline, online and offline hybrid gold course, and improve the quality of advanced mathematics teaching.

3. Conclusion

In the context of the rapid development of information technology, the reform of advanced mathematics has been widely concerned. In order to break through the shackles of traditional teaching methods, college mathematics teachers should follow the trend of the development of the times, and reasonably allocate teaching resources, so as to create an efficient classroom, combining online and offline to meet students' personalized needs. It helps students in learning problems in limited time to effectively improve teaching efficiency and create a high-quality "golden class".

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