

Research on the Integration of Modern Educational Information Technology and Mathematics Teaching in Colleges and Universities

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Key words: Modern education; Information technology; Mathematics in colleges and universities; Teaching integration

Abstract: With the development of scientific and technological technology, modern information technology has been popularized and applied in the field of teaching, which has promoted the progress of educational undertakings. In the process of the application of information technology, the teaching concept in traditional teaching has been changed and the teaching method has been innovated. In the teaching of mathematics in colleges and universities, the teaching content involved is relatively difficult for students to learn, and it is also difficult to master teaching knowledge. Based on the analysis of the application of modern information technology in high efficiency mathematics teaching, this paper makes the following discussion on how to integrate modern educational information technology with mathematics teaching in colleges and universities.

1. Introduction

In the reform of Chinese education system, the demand of students is also constantly improving. Based on the traditional teaching methods used in the process of teaching, it has been unable to meet the development needs of students, and can not gradually increase the difficulty of teaching content knowledge to students. Therefore, when teaching in colleges and universities, it is necessary conform to the needs of the students in the development of the times, attach importance to the role of information technology from the perspective of students, integrate modern educational information technology into the teaching environment, promote students' enthusiasm for learning, simplify the teaching content, leave the students with more independent learning space, cultivate students' good learning habits and lay a certain foundation for students' future study.

2. The disadvantages of traditional mathematics teaching mode

In recent years, with the continuous reform of educational institutions, the innovation of teaching ideas, and the influx of new teaching methods, the drawbacks of traditional teaching methods have gradually emerged. In the traditional teaching mode, classroom teaching is authoritative, teachers act as the main body in teaching, and students exist in the state of the object, passively accept the knowledge of teaching content. Teachers in the teaching of textbook teaching materials as the main teaching content, did not give students a certain amount of self-exploration and self-learning time, resulting in students lack of independent thinking, analysis of problems and problem-solving ability, as well as failure to recognize the differences between students in teaching, the use of uniform standards to measure and evaluate students, limiting the development of students' personality, is not conducive to students in the future study.

In the process of traditional mathematics teaching, teachers pay attention to the explanation of theoretical knowledge, but neglect the help of combining practical life teaching to students' learning of mathematical content knowledge. Too much attention is paid to students' mathematics assessment results, which is divorced from students' real life and limits the space for students to play freely. In teaching, teachers treat students differently according to their grades, which makes some students isolated. Classroom teaching mode is single, teaching for the purpose of exam-oriented teaching, focusing on the accumulation and memory of knowledge, rather than the application of students in real life^[1].

3. The changes brought by modern educational information technology to mathematics teaching in colleges and universities

With the continuous reform and innovation of educational mechanism, multimedia teaching has been gradually introduced into mathematics teaching in colleges and universities, which not only changes teachers' teaching concepts, but also facilitates teachers' teaching methods in the process of teaching. While alleviating the pressure of teachers' teaching, it has changed the passive learning state of students and teachers who have no intention to teach in the traditional teaching process. It rectifies the drawbacks of the inculcation teaching mode and fully exerts the students' subjective initiative in the learning process. Based on the application of modern information technology, it provides teachers and students with new teaching and learning methods, and allocates teachers and students' teaching degrees reasonably in the teaching classroom, so that both of them can fully exert their subjective consciousness^[2].

In the application of information technology in mathematics teaching in colleges and universities, some doubtful and difficult points and abstract teaching content knowledge in mathematics teaching are simplified with the help of modern information technology, and the conversion process and operation steps of complex formulas are visually displayed in front of students, which is conducive to students' learning and absorption. Modern information technology teaching highlights the main position of students in classroom teaching, and pays attention to the cultivation of students' subjective consciousness and ability to exert themselves. With the help of modern educational information technology, teachers' management role in teaching has been strengthened, while textbook teaching resources have been fully embodied, teaching resources have been continuously developed and expanded, and the shortcomings of traditional teaching modes have been further improved. It stimulates students' self-learning consciousness, develops their thinking ability and enhances their ability to analyze and solve problems, as well as consolidating their memory of knowledge^[3].

4. Advantages of modern educational information technology in college mathematics teaching

(1) Giving full play to the main role of students

The application of modern educational information technology in the process of mathematics teaching in colleges and universities has changed the phenomenon of the loss of students' subject status and the passive acceptance of knowledge of teaching content in traditional teaching. It fully demonstrates the students' main position in teaching. With the help of information technology teaching facilities, it stimulates students' interest in learning, mobilizes students' enthusiasm for learning, and gives full play to students' self-directed learning and inquiry ability in the learning process. It has created an active classroom learning atmosphere for students, which has changed the phenomenon of students' learning pressure and the depressed teaching atmosphere in the traditional teaching process. Using some teaching videos and teaching courseware in modern educational information technology, combining sound images with specific mathematical content can enhance the interest of mathematics and students' enthusiasm for learning^[4].

(2) Teaching students according to their aptitude

In the traditional teaching process, teachers do not realize the impact of differences between students on teaching. While increasing teachers' teaching difficulties and teaching pressures, students' overall learning efficiency will gradually decline. The application of modern educational information technology has changed this teaching phenomenon. It pays attention to the differences among students. From the perspective of students' own characteristics and development, it makes corresponding teaching plans for students according to the characteristics of students in learning and the development needs of students. In this process, students can choose their own learning methods and learning difficulties according to their learning ability and level. Teachers should give full play to students' subjective initiative, and implement the teaching concept of teaching students according to their aptitude into the whole teaching process.

(3) Improving the overall teaching efficiency

As for the teaching content of mathematics in colleges and universities, the teaching content is extensive, complex and abstract with many knowledge points and students' learning difficulties. In the teaching mode of indoctrination, students can not effectively grasp the knowledge of teaching content. When teachers have a slow pace in class, students' attention is difficult to concentrate for a long time, which affects the efficiency of class. In the application process of modern educational information technology, with the help of some teaching videos, the teaching contents are transmitted to students at the best time of their attention and learning efficiency, the complicated and abstract teaching contents are visualized and clarified, the students' memory and understanding of knowledge points are promoted, and the teaching efficiency is improved as well as the overall teaching quality.^[5]

5. Integration measures of modern educational information technology and mathematics teaching in colleges and universities

In the process of modern educational information technology and mathematics integration teaching in colleges and universities, teachers recognize and enhance students' main position, give students a certain amount of independent learning time, strengthen the communication between teachers and students, and with the assistance of teachers, students understand the mysteries of mathematics. Based on the teaching method of information technology, mathematics teaching is more concrete and visualized, satisfying the development needs of students and improving students' learning efficiency.

(1) Controlling the rhythm of modern information technology classes

In the application of modern educational information technology, some shortcomings of traditional teaching have been changed, and the learning efficiency of students has been improved. Therefore, in teaching, as a university, should constantly introduce some advanced teaching equipment and facilities, strengthen the training of teachers in various professional courses, so that they can master the corresponding teaching equipment operation ability. In teaching, teachers should reasonably control the application time and rhythm of modern information technology according to the length of students' class time, so as to arouse students' enthusiasm for learning while activating the classroom teaching atmosphere. To guide students correctly and create teaching purposes and development goals for students based on the teaching idea of integrated teaching, so that students are correctly integrated into the teaching classroom. It is needed to avoid modern education fully occupying the entire teaching process and reflecting the characteristics of entertainment excessively, making the teaching process meaningless in the application of information technology^[6].

(2) Improving teaching methods according to teaching purposes

In the teaching, in addition to imparting the corresponding teaching content of students, the main teaching purpose is to develop good learning habits in the process of gradual learning, to develop students' thinking ability and innovative consciousness, to promote the cultivation of students' correct outlook on life and values in the process of learning, and to play a role in helping students in their future development. In the process of the application of modern educational information technology, teachers should consider the purpose and significance of mathematics teaching synthetically, and improve the teaching method according to the students' teaching purpose through the understanding of students' learning style. For example, when leading students to learn the knowledge of teaching content, we should take the events close to students' daily life as teaching cases. From the perspective of students, we should take students' development as the center, highlight students' principal position, and create practical teaching activities with the help of modern educational information technology. It stimulates students' interest in learning and awareness, and enables them to actively participate in practical activities. Students boldly play their main role, give full play to their imagination and independent creativity, and constantly strengthen the consciousness of innovation to expand students' thinking ability, and cultivate students' awareness of independent inquiry^[7].

(3) Regulating the relationship between teachers and students and strengthening the communication between teachers and students

In the application of modern educational information technology in mathematics teaching in colleges and universities, teachers should pay attention to communication with students, create teaching situation by means of modern educational learning technology, and enhance the interactive communication between teachers and students. As a teacher, he should take the initiative to increase communication with students by means of modern educational information technology, penetrate into students' daily life, and comprehensively understand students' behavior characteristics, strengthen communication with students to understand the emotional problems encountered by students in life, and provide students with appropriate solutions to help them out of confusion, reduce the pressure and burden of students in learning, eliminate students from producing negative emotions, enhance students' confidence in learning, pull into the relationship between teachers and students and build friendships^[8]. Students truly recognize the importance of learning and integrate into learning to enhance the effectiveness of mathematics learning. Teachers should pay attention to students' emotional defects and confusion. In the integration of modern information technology, combined with the coordination of students' emotions, we can ensure the scientific integration of mathematics teaching methods with college students and implement the learning objectives of students in the learning process.

6. Conclusion:

In summary, in the process of integrating modern educational information technology with mathematics teaching in colleges and universities, teaching ideas have been innovated, teaching methods have been changed, deficiencies in the traditional teaching process have been remedied, and students' principal role in learning has been highlighted, which can give full play to students' subjective consciousness and initiative, promote students to actively integrate into the teaching environment, and carry out the study of mathematics teaching content in colleges and universities. While learning and using mathematics, students develop their thinking ability and innovative consciousness.

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