

Mathematics Teaching Reform in Higher Vocational Education Based on Modern Information Technology

Yanhua Fu

Jiangxi Vocational Technical College of Industry&Trade, Nanchang, 330038 Jiangxi, China

zxx18779865032@163.com

Keywords: Modern information technology, Higher vocational data, Teaching reform

Abstract: Higher vocational colleges, as the training center of social applied talents, have always been widely concerned and valued by all sectors of society for their teaching level and quality. Owing to the innovative progress of China's scientific field, information technology has been applied to the production and business activities of all walks of life, and the field of education has also begun to develop in the direction of informatization. As a very crucial course, mathematics teaching reform based on modern information technology can better adapt to the progress of the times and the trend of education reform. Based on this, this paper analyzes the current situation of mathematics teaching in colleges, and puts forward the reform path of mathematics teaching based on modern information technology, aiming at enhancing the teaching effect and pushing the better progress of students.

1. Introduction

The rapid progress of information technology and its wide application in the field of education have effectively promoted China's teaching reform and progress. Combining mathematics with modern information technology can not only break the shackles of traditional teaching mode, arouse students' interest in study and enthusiasm for classroom participation to the maximum degree, but also enhance teaching quality and effect, and lay a foundation for students' better progress^[1]. How to carry out the reform of mathematics teaching based on modern information technology has become a crucial topic and work focus for colleges at this stage.

2. Current Situation of Mathematics Teaching in Higher Vocational Colleges

2.1 Students Lack Autonomous Learning Ability

In the teaching activities of higher vocational colleges, the biggest characteristics of students are low learning enthusiasm and lack of autonomous learning ability. Due to examination-oriented education, the major middle schools have gradually formed the exam-oriented education and teaching mode. Under this educational model, to cope with various tests, teachers will give students the overall summary of knowledge points and let students memorize, while students are in a passive state of learning. Although this teaching mode can facilitate students to complete various tests, it is not conducive to the formation and progress of students' autonomous learning ability. When students enter colleges, they will present problems such as low autonomous learning ability. Especially in mathematics courses, due to the relatively complex theoretical knowledge, students' poor mathematical foundation and weak autonomous learning ability are also increasingly prominent^[2]. This has led to the occurrence of problems such as students not listening carefully, playing mobile phones, studying other subjects and even skipping classes in mathematics teaching.

2.2 Teachers Lack Information Literacy

In the construction of online+offline mixed teaching classroom management mode, the lack of information literacy of teachers, a crucial subject, will affect the construction process and effect. For instance, mathematics teachers do not have enough knowledge of information technology, which

leads to the inability to effectively develop online teaching and solve some network problems in a timely manner, resulting in the slow progress of online teaching of mathematics^[3]. In this way, modern information technology cannot fully exert its significance and value in mathematics teaching, thus affecting the teaching quality and effect.

2.3 Lack of Cooperation between Online and Offline Teaching

Currently, the online and offline teaching of mathematics education lacks effective cooperation. Because teachers focus too much on offline teaching, online teaching can not play its maximum role. There are still some colleges that focus on online teaching and ignore offline teaching, resulting in some teaching content can only be conducted online. In the actual mathematics education, only by strengthening the integration of online and offline teaching modes and reasonably allocating the teaching resources and teaching practice of the two teaching modes can the teaching quality and effect be ultimately enhanced^[4].

3. Significance of Higher Vocational Mathematics Teaching Reform Based on Modern Information Technology

First, it is beneficial to enrich teaching resources. Traditional mathematics teaching is more dependent on books and textbooks, and the teaching content has certain limitations, which leads to the limited mathematical knowledge mastered by students. However, owing to the support of modern information technology, teachers can collect teaching materials, mathematical examples, teaching auxiliary pictures, videos, etc. related to the teaching content to help vocational students recognize, analyze and master mathematical knowledge in depth, and expand their learning horizons. Secondly, it is beneficial to enhance teaching pertinence. Teachers can use modern information technology to carry out a network questionnaire survey on students, and conduct a specific survey on students' personal interest, attitudes towards mathematics learning, and overall mastery of mathematics knowledge^[5]. Through the network questionnaire survey, mathematics teachers can fully recognize the specific situation of students and formulate teaching objectives and plans that conform to their actual situation. This can not only enhance the teaching quality and effect, but also mobilize the students' participation in the classroom, and then foster and enhance the mathematics learning ability of vocational students.

4. Reform Paths of Mathematics Teaching Based on Modern Information Technology

4.1 Use Modern Information Technology to Foster Students' Enthusiasm for Learning Mathematics Knowledge

Interest is the best teacher. During mathematics teaching in colleges, mathematics teachers can only attract students' attention in mathematics teaching by adjusting and strengthening their teaching methods and contents, and using the relaxed and pleasant classroom atmosphere. As for students themselves, their interest in mathematical knowledge is one of the decisive factors for their full participation in the mathematical process. Students can participate in mathematics teaching wholeheartedly only if they accept mathematics knowledge in their subjective will. They can recognize and absorb mathematical knowledge more fully only if they are interested in mathematical learning, and then enhance their own mathematical learning ability and thinking, and solve mathematical problems independently. Therefore, mathematics teachers should fully use modern information technology to adjust their teaching forms and objectives, actively create an active classroom atmosphere, so as to push students' whole-hearted involvement in the mathematics class, and foster students' mathematical thinking and ability to solve problems independently.

In this regard, mathematics teachers should use modern information technology to create a good teaching atmosphere, strengthen the interaction between teachers and students, and avoid direct knowledge infusion. In actual mathematics teaching, teachers should master the learning progress and needs of each student, focus closely on the students' classroom performance and learning feedback, get the help of modern information technology to strengthen the interaction between

teachers and students. For instance, use multimedia to randomly call students to answer questions, make multimedia teaching games, etc., and then stimulate students' interest in studying^[6].

4.2 Make Use of Modern Information Technology to Concretize the Content of Mathematics Teaching

Mathematics curriculum is highly theoretical, abstract and complex, which requires students to have good thinking and logical ability and establish a mathematical knowledge framework. Therefore, mathematics teachers should attach importance to modern information technology, and turn abstract and complicated mathematical theories into concrete examples through multimedia, so that students can master mathematical knowledge points through interesting mathematical examples. Mathematics teachers can also sort out and summarize mathematical theoretical knowledge through modern information technology, help students establish a complete mathematical knowledge framework, and then foster and enhance students' mathematical ability.

Teachers can use modern information technology to transform abstract mathematical theoretical knowledge into mind maps and interesting pictures, and use various multimedia teaching software to show students the key points of knowledge, so that students can remember easily. In addition, behind every mathematical principle, there are mathematical experiments and experimental history. In classroom teaching, mathematics teachers can use modern information technology to tell stories to popularize knowledge. This can not only help students deepen their recognition of theoretical knowledge, but also broaden their horizons and create a good learning atmosphere.

4.3 Use Modern Information Technology to Innovate Teaching Methods

In view of the current situation of mathematics teaching in colleges in China, many mathematics teachers still choose the instillation teaching mode of teachers' explanation and students' listening under the restriction of traditional teaching methods, which fails to achieve good teaching results and reduces the enthusiasm of students to learn mathematics knowledge. Higher vocational colleges are different from ordinary colleges, and their main teaching goal is to foster high-quality professional talents, so the teaching focus is more on professional skills learning and professional quality improvement. This has reduced the quality and effect of mathematics teaching. Therefore, mathematics teachers should attach importance to modern information technology, and use all kinds of information technology to attract students' attention in mathematics class, so that students can devote themselves to mathematics learning. Teachers should use information technology to enrich the mathematics classroom on the basis of ensuring that students master mathematics knowledge, so that students can have a sense of expectation for mathematics learning, and push students to better conduct mathematics learning.

4.4 Set up Practical Assignments after Class

Most of the mathematics knowledge in colleges is obscure and difficult to understand. To achieve good teaching results and enhance the learning quality, mathematics teachers should also focus on homework, help students consolidate the knowledge points learned in time, and foster students' mathematical practice ability, so as to push students' all-round progress. At this stage, many students do not know the significance and value of mathematics, and cannot recognize the applicability of mathematics, while practical assignments can help students deepen their recognition of the practicality of mathematical knowledge. Based on modern information technology, mathematics teachers should organically integrate information technology and mathematics teaching thinking, and help students to apply what they have learned through practice. For instance, after the completion of the differential equation course, teachers can let students use the Malthus population model to calculate and predict the population of China in a certain time in the future^[7].

5. Conclusion

To sum up, it is necessary to develop mathematics teaching reform in colleges based on modern information technology. This is not only an inevitable trend of deepening reform in the field of

education, but also a crucial measure to enhance teaching quality and arouse students' interest. The application of modern information technology in mathematics teaching can change teaching mode and enrich teaching resources. Therefore, colleges should fully recognize the significance of modern information technology, actively take effective measures to develop teaching reform, and then lay the foundation for students to become talents.

References

- [1] Zhang Qi. Research on the application of modern information technology in higher vocational mathematics teaching reform [J]. Journal of Hubei Open Vocational College, vol.35, no.3, pp.164-165, 2022.
- [2] Zhang Zhiheng. Research and practice of higher vocational mathematics teaching reform under the information technology environment [J]. Heilongjiang Science, vol.11, no.15, pp.92-93, 2020.
- [3] Liu Lina. On the teaching model of higher vocational mathematics experiment under the background of modern information technology [J]. China Journal of Multimedia and Network Teaching, no.6, pp.9-10, 2019.
- [4] Sun Yongping. Analysis of Higher Vocational Mathematics Teaching Reform under the Information Technology Environment [J]. Journal of Yanbian Institute of Education, vol.32, no.5, pp.85-86, 2018.
- [5] Fu Naiwen. Research on Higher Vocational Mathematics Teaching Reform under the Information Technology Environment [J]. Youth, no.9, pp.148, 2018.
- [6] Li Yue. Research on higher vocational mathematics teaching reform based on the integration of modern information technology [J]. Journal of Liaoning Agricultural Vocational and Technical College, vol.18, no.5, pp.20-21, 2016.
- [7] Hu Xianfu, You Shiyuan, Li Huaping. Research and Practice of Higher Vocational Mathematics Teaching Reform in the Information Technology Environment [J]. China Adult Education, no.5, pp.154-156, 2011.