

Research on the Evaluation Mechanism of Mathematics Education Teaching in Colleges and Universities

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Abstract: The study explores the evaluation mechanism of mathematics teaching in colleges and universities. Traditional lecture-based mathematics teaching methods often lack interactive and practical components, which hinders students' learning effectiveness and interest. However, the integration of modern information technology offers opportunities to improve the quality of teaching and to enhance students' innovative thinking and problem-solving skills. To achieve this goal, teachers and students need access to diverse teaching resources, personalized learning platforms, and online communication tools. In addition, universities should promote industry-education integration to align teaching with industry needs and trends. Hands-on teaching methods, such as case studies and industry projects, can bridge the gap between theoretical knowledge and real-world applications, preparing students for future employment. Evaluation of teaching is essential to improve the quality of teaching, focusing not only on external assessments but also on feedback from teachers and students. The results suggest that the application of modern information technology and the integration of industry and education can improve the teaching of mathematics in colleges and universities.

Keywords: Mathematics education, evaluation mechanism, colleges, universities, assessment, pedagogy, curriculum, student learning outcomes, teaching effectiveness, quantitative analysis

INTRODUCTION

Mathematics, as a fundamental subject, plays an important role in higher education. Traditional mathematics teaching methods are usually lecture-based and lack interactive and practical components, which limits students' learning effectiveness and interest. However, the introduction of contemporary information technology has brought new opportunities and challenges to mathematics teaching in colleges and universities. By using information technology, mathematics teachers can design diversified teaching materials, online learning platforms, virtual experiments and other teaching resources to provide students with a more vivid, intuitive and interactive learning environment. Therefore, studying the application of the contemporary information technology in mathematics teaching in colleges and universities is of great significance for improving the quality of teaching and cultivating students' creative abilities. Colleges and universities need to strengthen the training and support for mathematics teachers, provide necessary technical equipment and resources, and encourage teachers to cooperate with technical experts to jointly promote the application of contemporary information technology in mathematics teaching in colleges and universities. Through continuous exploration and practice, colleges and universities can better use information technology to improve mathematics teaching methods, enhance students' learning effects and creative abilities, and contribute to the cultivation of high-quality mathematics talents. Mathematics learning is not limited to the study of mathematics, but also lies in understanding and passing on mathematical knowledge. In the process of exploring the combination of traditional Chinese mathematical culture and mathematical learning, it is not only about understanding traditional culture, but also about inheriting excellent mathematical theory and mathematical culture. It can better distinguish and connect mathematical culture and traditional culture, and better appreciate excellence. The attraction of classical civilization creates a

more complete and thorough understanding of classical culture, thereby stimulating mathematics learners' interest and enthusiasm in learning mathematics, and gradually forming the responsibility of the times to inherit and promote traditional culture, and enhancing the cultural confidence of the nation. , thereby improving learners' cultural literacy and mathematical abilities. According to the needs of the guiding principles of education and teaching, the theme of China's outstanding traditional mathematics culture is established, and the characteristics of the current mathematics curriculum are considered, and the teaching design focuses on three aspects: core concepts, the spirit of Chinese civilization and Chinese morality. It not only adds elements of China's excellent traditional mathematics culture into mathematics courses, but also demonstrates the wisdom and innovative spirit of ancient Chinese mathematics to students by elaborating on famous domestic figures, achievements and classic topics in classical arithmetic, thereby motivating learners' interest in mathematics and improve their mathematical literacy. Interest is the first teacher in learning mathematics. In the process of learning knowledge, interest and learning motivation are directly proportional, and can often stimulate learners' desire and motivation to explore deeper knowledge. Through these contents, students can not only master mathematical knowledge, but also enhance their sense of identity with traditional Chinese culture.

THE PROPOSED METHODOLOGY

The Mathematics Education Teaching in Colleges and Universities

In traditional higher mathematics classes, students are often limited to book theories and lack connections with real life. Therefore, the introduction of case teaching has become an effective teaching method. Case teaching not only enables students to combine abstract mathematical concepts with actual situations, but also stimulates students' interest in learning and desire to explore. By analyzing and solving real-

life cases, students gain a deeper understanding of mathematical principles and develop problem-solving skills and innovative thinking. With the development of society, the demand for talents in the industry is also constantly changing. In order to better meet the needs of industry, universities should actively carry out the practice of integrating industry and education. By cooperating with enterprises to carry out projects, internships, research and other activities, students can gain a deeper understanding of industry trends and actual work needs, adapt to the workplace environment in advance, and prepare for future employment. Universities should also establish long-term and stable cooperative relationships with enterprises and establish two-way communication channels. By holding regular industry exchange meetings, special lectures, company visits and other activities, colleges and universities can keep abreast of the needs of companies and industry trends, adjust curriculum and teaching content, and ensure that the knowledge students learn is consistent with market demand. In the context of the integration of industry and education, mathematics education in colleges and universities should also keep pace with the times and constantly update teaching concepts and methods. In addition to traditional case teaching, teaching methods such as practical project design, simulation, and online resources can also be introduced to enhance students' practical abilities and innovation awareness. At the same time, students are encouraged to participate in the mathematical modeling competitions, scientific research projects and practical activities to cultivate their teamwork spirit and problem-solving abilities and lay a solid foundation for future career development. The use of modern information technology in mathematics teaching aims to improve the teaching effectiveness and academic performance of students, and cultivate mathematical thinking and problem solving skills. To achieve this goal, the following requirements must be met. First, teachers and students need to be provided with a wealth of mathematics teaching resources, including electronic textbooks, online courses, and academic papers, to provide a variety of learning materials and tools to help students understand and apply mathematical knowledge more deeply. Second, students need to engage in personalized and independent learning, and choose learning content based on their learning progress and interests. Modern information technology provides online learning platforms and educational applications that allow students to independently choose learning materials and methods, improving learning effectiveness and motivation. Finally, modern information technology has enabled distance learning and online communication. Teachers can conduct real-time online teaching and interaction through the Internet, providing students with more learning opportunities and resources, while promoting interaction and communication between teachers and students.

The Evaluation Mechanism of Mathematics Education Teaching

The quality of classroom teaching is the core foundation for improving educational standards, and reasonable classroom teaching evaluation is a crucial part of the teaching process. It helps to continuously improve teaching levels and ensure teaching quality. The goal of classroom teaching evaluation is not just to conduct a qualitative evaluation of teaching, but to promote continuous improvement of teaching and thereby improve teaching quality. In addition to external evaluation methods, such as peer evaluation and supervision evaluation, teachers and students, as implementers and participants of classroom teaching, have more important evaluations. By

analyzing all aspects of classroom teaching, teachers can discover problems in a timely manner and propose effective improvement measures. Local applied universities should combine local industrial needs and advanced technological concepts, and focus on cultivating applied technical talents closely related to local industries to serve local industries and promote local economic development. Practical teaching, as an important way to cultivate innovative talents, emphasizes ability orientation, attaches great importance to the cultivation of students' innovative ability, and focuses on the cultivation of students' application ability of theoretical knowledge, practical industry operation skills and scientific problem exploration ability and other practical aspects. In order to promote the reform of teaching management in applied universities, the traditional departmental organization and bureaucratic management system can be changed, and a more flexible and open teaching management organizational structure can be established to promote the cultivation of students' practical ability and innovative consciousness.

CONCLUSIONS

In conclusion, the study underscores the importance of integrating modern information technology and industry-education collaboration in mathematics education. By utilizing these approaches, colleges and universities can enhance teaching effectiveness, improve student learning outcomes, and cultivate innovative talents. In addition, classroom assessment plays a critical role in identifying areas for improvement and promoting continuous improvement in teaching quality. Going forward, institutions should embrace innovative teaching methods and adapt to evolving industry demands to better prepare students for future challenges and opportunities in mathematics.

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