Research on Teaching Design of Colleges Mathematics Micro-Course Based on the Perspective of Network Teaching Platform

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Abstract. With the development of science and technology, colleges and universities have gradually begun to combine network teaching platforms with online and offline hybrid teaching models to train students. This article mainly analyzes the influence of online learning platform on mathematics education. It also studied the micro-course design of the college mathematics network learning platform.

Keywords: Network Platform, College Mathematics, Classroom Education

1. Introduction

In recent years, computer technology has developed rapidly. The learning resource platform with micro-courses as the learning unit is sweeping the world at an extremely rapid rate. Among them, platforms such as MOOC and WeChat have become a paradise for all kinds of learners to learn independently. The learning resources and learning methods will inevitably affect the traditional classroom education. This is conducive to solving the shortcomings of current traditional classroom teaching.

2. Overview of Mathematics Teaching in Colleges and Universities

2.1. Teaching content of mathematics courses in colleges and universities

College mathematics is an important basic theory course for science and engineering majors. Mathematics is a public basic course in colleges and universities. It plays a pivotal role in the undergraduate education stage. The main content of the course includes: unary or multivariate functions and their properties, space geometry and vectors, series residues and the basic theories and concepts of differential equations, analysis and calculation. The function and purpose of the teaching of mathematics courses in colleges and universities: First, it can provide the necessary basic knowledge...
of mathematics for future mathematics courses; Second, it can teach mathematics concepts, students can cultivate innovative awareness of mathematics in colleges and universities, and it can also gradually improve students' mathematical cultural literacy, mathematical logical thinking ability and mathematical application ability [1].

2.2. Teaching direction of mathematics courses in colleges and universities

Many students study for high scores. This utilitarian guidance has a negative impact on students. Many students lose interest and motivation in learning after the college entrance examination. The teaching method of learning for scores has been eliminated by the society. At present, the direction of mathematics teaching is gradually tending to cultivate students' hobbies, which makes students full of vitality and expectations for learning. College mathematics is an important course for students to develop logical thinking, and we should pay attention to it. The development of the Internet has provided a multi-style educational resource platform, and many universities have opened online public courses, micro-classes, and online correspondence courses. In the classroom, teachers occupy a dominant position, and students follow the steps of teachers [2]. However, some students are afraid to ask questions and express their opinions. This not only makes students' thinking widely unified, but also makes students lose their ability to think about themselves. College students are a part of the future of society, and they should make good use of high-quality Internet resources to strengthen and train their own learning capabilities. The Internet makes college mathematics courses no longer single. Mathematics courses require continuous communication between students and teachers. We must change the past teaching methods. Teachers and students learn from each other, discuss and communicate with each other, so that the teaching of mathematics courses can be more successful.

3. Problems in the teaching of mathematics courses in colleges and universities

3.1. Teaching knowledge is too abstract

Compared with the past, the current students' mathematics knowledge is getting thinner and thinner, which forms a phenomenon of low foundation and high starting point, and students can hardly. However, in the eyes of teachers, extremely simple knowledge does not require time-consuming explanations, which leads to poorer mathematics abilities of students. When students are exploring problems, the teaching tasks are further improved, and the difficulty continues to increase. In this way, the distance between knowledge and students will become farther and farther, and students will gradually lose confidence in learning [3].

3.2. Curriculum design goals are not clear

More and more mathematics teachers are focusing on imparting knowledge, they lack the understanding and application of knowledge points, which leads to the situation that the teacher's teaching purpose does not match the students' understanding. Moreover, there must be conflicts between the gradually updated teaching materials and the old teaching materials. This creates a conflict between teachers, students, and books. As the instructor of culture, teachers must be clear about their own educational goals. For curriculum design, teachers must establish the purpose of curriculum design, and then guide students to thoroughly understand and apply the knowledge points.
3.3. Deviations in student cognition

As mentioned above, the knowledge that students are exposed to is too abstract. The teacher’s lectures gradually become difficult, and students cannot keep up with the teacher’s footsteps, this will easily cause students to enter the knowledge blind zone. Students will be biased in their understanding of knowledge. The understanding of the knowledge points between the teacher’s old textbook and the gradually updated textbook is inconsistent. If teachers use traditional teaching methods at this time, students will be brought to the blind spot of knowledge [4]. In addition, many students think with groups in the learning process, which can easily lead to the consequences of "one person is wrong, everyone is wrong".

3.4. The teaching mechanism is not perfect

At present, most mathematics teachers hardly communicate with other teachers in the process of filing and teaching. Although each teacher has his own teaching method, they should also communicate with other mathematics teachers, instead of using their own set of teaching methods. The teacher’s teaching feedback can not cover the overall problems reflected by the students, so this cannot eliminate the problems in teaching. The same textbook, different teachers have different teaching methods, different students also have different receptive abilities. How to find the best way to teach, teachers play a vital role. Only when teachers understand the actual needs of students can they prescribe the right medicine. Colleges and universities must instill teaching tasks thoroughly and improve the mathematics curriculum system [5].

4. The impact of online learning platforms on mathematics education in colleges and universities

Using the online learning platform can exercise college students’ divergent thinking and innovative thinking, this can realize students’ independent cooperative learning and inquiry learning. Through the network platform, we can realize classroom teaching reform, it can promote college students' independent learning and collaborative learning. At present, the online learning platform has been recognized by teachers [6]. The online teaching and learning platform has also had a great impact on college education, as shown in Figure 1.
Figure 1. The Influence of Online Learning Platform on Higher Education

4.1. *It changed the concept of mathematics learning in colleges and universities*

In the development of the online learning platform, many courses are developed based on practical problems. In addition to mastering the basic concepts of mathematics, students also master the methods to solve real-life problems, which changes the learners' inherent impression of mathematics. Therefore, the emergence of online learning platforms has changed the concept of mathematics learning [7].

4.2. *It improves the efficiency of classroom teaching*

It is a subject with traditional teaching as the main method. Mathematics classroom teaching is mainly through the teacher’s blackboard. After a series of deduction, calculation, and certification, students are in the position of recipients. Traditional mathematics teaching can help students follow the teacher's ideas, and students can quickly master relevant knowledge in class, but the drawbacks are also obvious. There are differences in students' mathematics ability, and traditional teaching methods can hardly meet the needs of students' individualized learning. The online learning method is the product of the individualized learning needs of students, which has changed from the traditional "learning by teaching" to the form of "learning by learning". The online learning platform allows students to use fragmented time for targeted mathematics learning, which effectively improves the efficiency of mathematics teaching [8]. It has played an important role in the cultivation of students' mathematical thinking and mathematical learning ability.

4.3. *It shares high-quality math courses*

In traditional teaching, the quality of teaching is determined by the professional ability of the teacher. The online learning platform gathers national and global excellent educational resources, which can solve the problem of unbalanced educational resources, and it can also make up for the lack of professional ability of teachers themselves. Through the sharing of network resources, teachers' learning ability can also be improved.

5. Micro-course design of college mathematics network learning platform

Figure 1 shows the teaching mode of college mathematics micro-course based on the network platform [9].
5.1. Carefully select topics

Topic selection is the first step in the development of micro-courses. The choice of the subject determines the direction of the micro-class, and we have to design it carefully. This requires consideration of four aspects: (1) The selection of knowledge points, we must ensure the integrity and relevance of the knowledge points; (2) The formulation of teaching objectives must grasp the core knowledge points to be learned in the micro-course, We start from the slightest and pay attention to the level of teaching objectives; (3) We should also consider the students' actual learning ability and learning interest. The fascinating topic selection can tightly grasp the students' attention, which achieves a multiplier effect with half the effort. (4) The topic selection should be close to life.

5.2. Refine teaching design

The detailed instructional design is the foundation to ensure the quality of the micro-classes. Before the production of the micro-class, we have to carry out a detailed instructional design, and then make an instructional script. According to their own teaching experience, teachers should adopt standardized methods, carefully structure teaching links, and achieve teaching goals through rich teaching activities design.

(1) Construct a learning model for situational teaching: Situational teaching is an advanced teaching mode. We adopt the method of introducing scenes, which presents boring knowledge to students in life scenes. Appropriate situations can make students interested in learning, this can help students quickly enter the learning state. In situational teaching, we must pay attention to the integration of students' majors and topic selection.

(2) Optimize the links of classroom teaching: Micro-classes should display knowledge points through a variety of means and methods. It should be different from regular classroom teaching, and it should highlight the most essential parts. In the short-lived scene, it must show clearly the knowledge
points to be taught, and then complete the established teaching tasks. Situational animation can capture the learner’s attention and stimulate interest in learning. In the case display, in the case display, teachers should guide learners to think [10].

5.3. Integrate effective resources

Micro-classes are not isolated. It is not only classroom design, video shooting, and release. It also includes topic-related resources: multimedia courseware of the course, student interactive feedback content, evaluation methods, reflection questions, classroom consolidation exercises, etc. Micro-classes are not isolated. It is not only classroom design, video shooting, and release. It also includes topic-related resources: multimedia courseware of the course, student interactive feedback content, evaluation methods, reflection questions, classroom consolidation exercises, etc. Integrating these resources on the network platform is a necessary condition for high-quality micro-courses.

6. Conclusion

The emergence of online teaching platforms has brought unprecedented opportunities and challenges to efficient teaching. Therefore, if we want to use network resources to reform teaching, we must continue to learn advanced teaching methods. We must carry out teaching reforms that are more adapted to the new era while adhering to traditional classroom teaching.

References

[1] Zhang Wenrui. Study on the status quo and problems of network teaching resources in colleges and universities [J]. Old District Construction, 2011(22): 62-64.

[2] Hu yao Zheng. Existing mathematics teaching colleges and universities and to explore countermeasures [J]. Industry and Technology Forum, 2018 (10): 154-155.

[3] Subcommittee on Teaching Guidance of Basic Mathematics Courses for Non-mathematics Majors in Colleges and Universities. Suggestions on the Status Quo of College Mathematics Teaching and Improving Teaching Quality [J]. China University Teaching, 2005(02): 9-11.

[4] Huang Haiping. On the basic qualities of college mathematics teachers under the network environment [J]. Education and Vocation, 2010(14): 61-62.

[5] Shi Hongfang. The practice and effect evaluation of mathematics teaching in normal universities based on network platform [J]. Vocational Education Research, 2011 (02): 171-172.

[6] Li Yanqiu. The application and analysis of network teaching platform in mathematics courses in colleges and universities [J]. Science and Technology Vision, 2018: 76-78.

[7] Li Lingling. The application of network teaching platform in university course teaching [J]. Journal of Hubei Correspondence University, 2018: 146-147.

[8] Lin Jinya. Analysis of the Application Strategy of Big Data in the University Network Teaching Platform [J]. Communication World, 2018: 292-293.
[9] Chai Ruishuai. Analysis of the integration of modern educational technology and mathematics education in colleges and universities [J]. Education Modern, 2018(03):190-191.

[10] Li Xiaofeng, Wang Zhonghua. An Investigation and Research on the Application of Network Teaching Platform in University Course Teaching [J]. China Distance Education, 2012:69-72.