

Research on the Application of Micro-course in Mathematics Teaching in Senior Middle School

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Abstract

With the continuous advancement of quality education, higher requirements are put forward for high school mathematics teaching. Mathematical teachers must not only ensure that students achieve excellent results in the college entrance examination, but also comprehensively improve students' mathematical literacy and train students to use mathematics knowledge to solve problems independently. Ability. Traditional mathematics teaching methods can no longer meet the requirements of quality education. High school mathematics teachers must change their ideas and boldly carry out teaching reform.

Keywords

Micro-course, high school mathematics, flip classroom, applied research.

1. Introduction

Strictly speaking, micro-courses are not the product of the Internet. Before the Internet was formed, it was already widely used by American scholars in teaching. The rapid development of the Internet has brought more convenience to the teaching of micro-teaching. Teachers can follow the teaching. Need, after careful recording, store the instructional videos on any Internet that is easy for students to learn, so that students can learn independently at any time and place. High school mathematics teachers must regard students as the main body of education and teaching, give full play to students' subjective initiative, enhance students' experience of mathematics knowledge, and use the flip classroom teaching method to return mathematics classroom to students and let students learn independently. The ability and ability to analyze problem-solving is fully exercised in flipping classroom instruction[1].

2. The concept and characteristics of the micro-course

Micro-courses are the teaching activities for teachers to use the professional recording equipment and information technology to effectively teach the key points and difficulties in classroom teaching. The implementation of micro-courses must have at least three conditions:

- (1) Recording the teacher's teaching process with professional recording equipment, and processing the recorded content by professional video and audio technicians after the recording is completed, ensuring that the video and audio parts of the recorded content exhibit high quality picture and sound quality.
- (2) The teaching content of the teacher is based on the key points and difficulties of the teaching. It is not the whole classroom teaching content. The language of the teacher should be simple, popular, easy to understand and logical.

(3) To have the conditions for connecting to the network or hardware storage, upload the content of the teacher's micro-course to a designated network location or mobile storage device to facilitate student learning and communication.

Characteristics of the micro-course:

(1) Short teaching time

The micro-course is a short course, and the teaching time is about 5 to 10 minutes. Its teaching time only accounts for 11% to 22% of the classroom teaching time.

(2) Teaching content is small and fine

The teaching content of micro-teaching presents short and precise characteristics. Teachers in the micro-teaching teaching mainly focus on specific topics, showing the characteristics of strong pertinence. Although the teaching content is small, it has certain pertinence, which can deepen the memory of students and ensure Students get valuable information in a short time and achieve good teaching results.

(3) Less storage space

The recording time of the micro-class is about 5 to 10 minutes. Even if you adopt the high-definition recording mode, it will not take up too much storage space, which is easy to upload and download. Students can open the video to learn and reduce the students with lower traffic. Learning costs.

3. The concept and characteristics of flipping classroom

The initial flipping classroom was a teaching method adopted to solve the problem of students attending classes in absentee classes. It can be seen that flipping classrooms exist to solve practical problems. The ability to flip the classroom today is no longer limited to helping absent students make up classes, but instead becomes a new student-centered teaching model[2].

The characteristics of the flip classroom are composed of two parts:

(1) After learning

The “learning first” part of the flipping class is mainly based on the students' self-learning. It is the teacher's assignment to the students outside the classroom. The students learn by watching the videos recorded by the teachers under the class, and record the places that are not understood in the video. Come down and propose a solution during class teaching.

(2) Knowledge is internalized

In the classroom teaching, teachers no longer systematically explain the mathematics knowledge content, but mainly solve the universal problems that students have when they are self-study. They solve the students' confusion through the students' questions and the teachers' answers. In addition to solving the problem, the teacher should also explain the key points and difficulties of the teaching in the classroom. This is impossible to achieve in the traditional classroom teaching. The “learning first” part of the flipping classroom makes the students have the knowledge of the system, and the teacher does not need to Repeated explanations in classroom teaching can leave enough time for key and difficult teaching.

4. Application strategy of flipping classroom based on micro-class in high school mathematics

The flipping classroom presents the teaching characteristics of the first post-learning teaching. In the specific teaching, the teaching characteristics of the flipping classroom should be followed, and the teaching should be carried out according to the steps of the post-learning[3].

4.1 Application strategy of flipping classroom in the stage of students' self-learning

(1) Carefully planning and recording micro-course videos

Micro-course video is the carrier of teacher teaching. Students use micro-course video as the main learning material when they study independently. For this reason, high school mathematics teachers should carefully plan and record micro-course videos. Taking the teaching of the arithmetic progression as an example, the teacher can not pay attention to all aspects when recording the video of the micro-course, but to explain the key points and difficult points effectively. The general formula of the arithmetic series can be used as the only teaching content to explain. In the video recording, the contents of the first n terms and formulas of the arithmetic progression, the middle of the difference, the judgment and the nature of the arithmetic series are not involved, and other contents can continue to be thematic teaching in the form of micro-courses. It can be seen that the mathematics flipping class based on micro-classes is a separate explanation of the key points and difficulties of mathematics. It follows a teaching method of “reconstruction to zero”. The teacher adopts a special teaching method. In the micro-class recording, the teacher should clarify the teaching objectives, know that the micro-course is to solve the problems in the arithmetic series; on the basis of determining the teaching objectives, the teaching framework structure is based on the teaching experience and wisdom, and the reasonable teaching steps are adopted. To achieve the expected teaching effect; in the teaching of the differential series of micro-courses, the teacher should scientifically set the PPT to coordinate with the classroom teaching, and practise the content of the general formula of the abstract arithmetic series through PPT to deepen the students' understanding of knowledge; meanwhile, the teacher Also pay attention to the language of instruction, adopt a language that is easy to understand as much as possible, optimize and integrate the knowledge structure with logical thinking, and then pass it on to students according to the steps from “from shallow to deep” and “from special to general”.

(2) Reasonably arranged viewing tasks

After the completion of the micro-course recording, the teacher can upload the micro-course content to the class WeChat group, and arrange the student's viewing tasks in the class WeChat group, that is, what kind of knowledge needs to be learned by watching the micro-teaching teaching, taking the arithmetic progression as an example. Teachers can assign learning tasks to students:

The concept of the arithmetic series; the derivation process and application of the general formula of the arithmetic series; the meaning of the mathematical formula of the equivalence mathematics; the key content of the mathematical formula of the equivalence mathematics; the clearing of the arithmetic progression by learning is a function The model can use the learned arithmetic of the difference series to solve the actual problem.

(3) Encourage students to carry out group cooperation mode

The teacher announced the micro-course video and learning tasks of the arithmetic series after the WeChat group, and encouraged the students to carry out the mode of group cooperative learning. Group cooperative learning can facilitate students to study and discuss the content of micro-courses, form a brainstorm in the discussion, and play a role in expanding students' thinking.

(4) Give full play to the “dial role” of micro-courses and guide students to carry out exercises reasonably

Micro-teaching is more attractive than traditional teaching. Teachers can make full use of various teaching-related materials when recording micro-courses, which greatly enriches the content of classroom teaching. Self-training has played a positive role. After the teacher finishes the content of the micro-course, he has to set aside time for self-study assignments. For each exercise problem, the teacher can use one or two sentences to enlighten the students' cognition and play the role of dialing to improve the students' practice. "Reading ability" and "analytical ability".

4.2 Application Strategy of Flipping Classroom in Classroom Teaching Stage

(1) “Introduction to the classroom”

After the students have completed the micro-class study, the classroom is turned into the classroom teaching session at the teaching stage. At this stage, the “teacher-student interaction” should be

completely realized. In the classroom introduction process, the teacher does not need to set up the “creative” import content. This is because the students have already had a general understanding of the classroom teaching content in advance, and only need to “immediately” list the learning objectives of this lesson on the blackboard. Task, tell students what kind of problems they need to solve.

(2) Group communication, mutual correction and correction in communication

Since the students have completed the basic learning tasks in advance, the teachers can adopt the group communication learning method, let the students talk about the mathematics problems, and express their opinions. Everyone can express their understanding and understanding of the arithmetic series. When individual students have errors in their understanding, they will naturally be questioned by others. Other students will correct them according to the problems that arise, so as to achieve mutual investigation and correction in the group communication, and to achieve mutual learning between students.

(3) Leveling exercises to consolidate existing cognition

After the students complete the learning content of the knowledge, the teacher can ask the students to carry out level-level exercises on the knowledge already acquired, in order to consolidate the students' existing cognition. In the practice of leveling, the teacher should follow the rules from easy to difficult, from simple to complex, gradually deepen the difficulty of the exercises, from basic practice to consolidation exercises, to expand the practice, to achieve students' all-round control of knowledge.

(4) Find with your heart, check the student's micro-learning effect

Micro-courses provide students with more independent learning space. Students can complete classroom teaching tasks at any time and any place through micro-courses. However, if teachers do not have the attitude of finding problems and check the learning effect of students, they will let some Students with low self-learning ability are “opportunistic” and “do not know how to understand”. To this end, the teacher should carefully discover that before the classroom teaching, check the student's micro-class learning effect, you can take the spot check to answer the questions, list the questions and let the whole class students answer the same way to collect the students' feedback information, check in the information feedback. The student's micro-learning effect.

5. Conclusion

The flipping classroom based on micro-classes fully meets the requirements of quality education, and has strong social practice significance in high school mathematics teaching. For this reason, high school mathematics teachers must change the traditional teaching concepts and actively learn to reverse the relevant knowledge of classroom teaching. Improve the level of teaching, thus improving students' comprehensive mathematics.

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