Research and Analysis of Economic Mathematics Teaching Reform Based on Flipping Classroom

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Abstract: With the application of the promotion of information interaction technology, accelerating the construction of a strong country in the network era. First of all, technological innovation has brought about a turning point in economic development; secondly, it directly affects the existing education model of the business profession. The qualitative research of economic subjects is not in line with the development trend of the market. Therefore, it is innovative in the teaching mode of economic management. Based on the perspective of flipping classrooms, it consolidates students' economic management knowledge, enhances their analytical ability and comprehensive education level, and finally evolves into the key objectives of the economic mathematics teaching reform.

Introduction

The steady development of education has accelerated the reform process of educational institutions. The core of its education is all students, motivating students to actively participate in the classroom teaching environment, actively expressing their views, uniting and cooperating, and discussing in groups, students mutual evaluation, vigorously promote new teaching models, and enhance the relationship between teachers and students, students and students. However, with the continuous advancement of reforms, many teachers are still not very adaptable to the changes in roles, which cannot highlight the practicality of the concept of life-based education.

1. Flipping classroom overview

1.1. Teaching mode

For the flipping classroom teaching mode, the English interpretation is to reverse the classroom, which refers to breaking the previous classroom teaching order, changing the teacher's blind knowledge transfer, students passively accepting knowledge, using the after-school time review scene, and transferring knowledge and knowledge internalization. Flipping place the teacher to explain the knowledge before the class, the students put together the key content and basic knowledge that the teacher talked about before class. During the class, different kinds of multi-teaching elements are used to further help students to consolidate and review, find out the problems in learning, establish a knowledge structure that reflects individual advantages, and carry out targeted teaching according to the actual situation of each student [1].

1.2. Teaching advantages

In recent years, the education industry has made great strides, and the flipping classroom is a new teaching mode that it launches. It meets the development conditions and rules of education, directly affects students' learning efficiency and achievements, and is embodied in the following points:

First, to stimulate students' enthusiasm for learning and to make students better integrated into the classroom. The innovative object of flipping classroom is the old-fashioned teaching mode, which creates a soothing and enjoyable learning environment for students. In the new model, the teaching elements that flipping classroom brings to students are diverse. For example, there are pictures and videos. Students can review before class, master more and more knowledge points,

enjoy the flushing of visual and auditory, and let students gradually like to flipping classroom. At the same time, the introduction of innovative technical methods in the flipping classroom can extend the students' horizons to a greater extent, supplement a large amount of teaching resources, and enable students to master more knowledge content in the limited classroom teaching, fundamentally enhance students' learning efficiency and meet higher education standard requirements for talent development in the environment.

Second, the realization of the purpose of teaching. For the past classroom education, the teacher's dominant position is fully revealed, and the teacher is faced with a group of students. So in the classroom, the teacher can't take care of every student. Each student has different levels of learning and mastering new knowledge. Therefore, in the classroom, only the average method can be used to complete the explanation. In this process, some students will not be able to keep up with the teacher's rhythm, and students with slightly better academic performance will be dissatisfied contradiction. Flipping classroom to place the initial part of the course in the spare time, students can check the learning content and progress on their own and then scientifically deploy with their own mastery. Both excellent and medium-sized students can achieve learning goals in this learning atmosphere, improve classroom efficiency, and use tiered education to better implement the work of teaching people.

Third, the use of flipping classrooms can fully enhance students' self-directed learning awareness. For the traditional education classroom, the focus is on the status of the teacher, ignoring the students' understanding of the knowledge, so that the educational activities can not achieve the predetermined effect. Therefore, the reference to flipping classroom model fully demonstrates the value of students' educational activities, so that students can plan the progress of the curriculum according to their own circumstances. In-depth discussion on the difficulties in the course, combined with their own ability to start learning, and reasonable arrangements for study time. The purpose of this will not only better highlight the role of the curriculum, but also focus on the students' self-directed learning awareness, and integrate such concepts into different disciplines, so that students' self-learning will continue to improve [2].

2. The significance of economic mathematics teaching reform

2.1. Teaching purposes

With the rapid development of the market economy, economic problems are becoming more and more obvious. The main forms involve diversification and cumbersomeness. The economic environment has also been transformed from the previous qualitative analysis into the current quantitative and qualitative integration. The importance of economic mathematics in the perspective of economic management is self-evident, and it deals with the cumbersome economic problems in life. Economic mathematics is an important branch of the subject of higher mathematics. It needs to be decomposed into data statistics, linear algebra and calculus with reference to the application target. It is an important subject of economic management in schools. Its teaching aims to cultivate compound talents and economic theory knowledge and economic analysis skills, practical skills.

2.2. Teaching significance

The key points of economic mathematics teaching are not only economic theory knowledge, but also the practicality and quantitativeness of economic mathematics, and put the concept of dealing with problems in the key parts of teaching [3]. For example, reaffirm the child labor requirements and supply functions to comprehensively analyze and discuss the real supply situation of the market, accelerate the scientific production speed of enterprises, and ease the accumulation of goods; thoroughly study equipment depreciation and financial compounding status through limit theory; use derivative knowledge to analyze supply and price contact and get accurate and flexible data.

2.3. Education dilemma

Higher mathematics is the support of economic mathematics. The professional knowledge of

economic mathematics is relatively cumbersome, and the practical operation is very difficult. The mathematics foundation of most management majors is not very good. When learning difficult theoretical knowledge, it usually cannot afford to learn. When the teacher teaches economic theory to the students, the classroom atmosphere is boring, which makes the teaching efficiency drop significantly. At the same time, in the past management professional teaching classroom, the teacher regarded the core of education, the students were in a passive state, the learning efficiency could not be raised, and the students and students lacked the sense of solidarity and cooperation. Based on this, the implementation of teaching reform, comprehensively strengthen the efficiency of economic mathematics teaching, as a core thinking object of management professional education.

3. Flipping classroom teaching implementation method

At this stage, based on the reform of higher education, it advocates the teaching idea of students as the main body, motivating students to express their opinions in the classroom, discussing with the group units, unity and cooperation, self-evaluation and student mutual evaluation. The teaching method completes the classroom teaching task [4]. However, there are many doubts in the actual teaching practice. For example, the teacher adjusts the role slowly, the formal problem exceeds the substantive problem, and the effect is not obvious. The deep integration of information technology and the Internet industry, the supply of different kinds of technology to the flipping classroom, according to domestic and foreign research results and successful cases, according to the characteristics of college economic management professional, the establishment of flip classroom mold, specifically related to pre-class preparation, classroom activities, organized under the class.

3.1. Preparation before class

Whether flipping classroom can achieve good results, mainly depends on the quality of the preparation before class [5]. (1) Develop new curriculum modules. In combination with the standard requirements of the syllabus, different types of learning resources such as different kinds of micro-classes, common exercise books, and materials are designed for students' convenient research and development. (2) The teacher transmits the micro-course video and the learning content to be transferred to the class network platform in advance, and informs the students to browse the video materials before the class and complete the exercises independently. (3) If students encounter difficult problems during the study period, they can read the materials or communicate and communicate on the network platform and WeChat group to provide guarantee for the smooth implementation of classroom activities. In the eyes of many economists, the sequence of events and speculative problems of economic variables are extremely important. The autoregressive moving average model, autoregressive model and moving average model are the most frequently used time-sequence speculation methods. For the autoregressive model, it is the most difficult in economic mathematics. The autoregressive model selects the simultaneous equation model, develops the regression for the lag period of different variables, and finally infers the internal relationship of the overall endogenous variables. For example, collect and sort out the annual yearbook information of a certain province and city, construct an autoregressive model, and quantitatively analyze the relationship between investment consumption and economic growth in a certain province and city, and choose the stationary test method, cointegration test method, impulse response function and variance analysis method. To analyze the links between investment, consumption, and economic growth in a province or city. Combine the above content with Eviews software to complete the recording of process video, then upload it to the platform for students to browse by themselves, and at the same time complete the exercises on the software, use this method to familiarize students with econometric analysis and further understand the application process of Eviews software. The teacher only relies on the classroom to teach, the students are very easy to forget, since the video was uploaded, it is convenient for students to watch the video at any time, and then strengthen the practice of imitation, and improve the teaching effect from the root.

3.2. Classroom activities

Flipping classroom is to exchange the image of teachers and students in the past teaching. The core of student learning is not the teacher. The curriculum design is closely surrounding the students. The teacher is the forerunner to guide students to learn. Classroom activities are the main part of the teacher's mathematics teaching, and are also the focus of assisting students to complete the staged knowledge training. This link is often used in communication and discussion of students to read the micro-course video, self-learning, and explore the problems encountered before class. The teacher combines the easy and difficult points encountered by the students in the learning process to implement the explanations, focuses on the implementation of the guiding tasks, provides students with quality services, and helps students better grasp the knowledge they have learned. On the one hand, teachers should focus on cultivating students' ability to discuss and deal with problems independently, and also select some error-prone questions for students to practice repeatedly. On the other hand, the team is motivated to discuss the issues, and the analysis of the group can improve the students' ability to unite and cooperate, help the students to better deal with the problems encountered, and enhance the spirit of solidarity and cooperation. However, during the implementation period, it must be continuously deployed, managed and guided to fully stimulate the learning enthusiasm of the team members and lay the foundation for the smooth implementation of the group activities. You can also infiltrate the results of group collaboration and discuss in the classroom to achieve resource sharing and progress together. In addition, teachers should focus on cultivating students' innovative thinking, and guide students to participate in classroom communication activities, using inspiring teaching mode, allowing students to complete their studies independently, breaking the phenomenon of passive learning in the past, expounding their own arguments, and motivating students to learn knowledge. The process uses unique concepts and methods to select different paths to improve students' innovative skills. For example, when learning the chapter on economic mathematics Cauchy integral formula, the teacher should focus on explaining. The Cauchy integral formula occupies a certain position in calculus, representing the integral expression of the analytic function, which fully reflects the analysis. The function is the relationship between the boundary value and the internal value within the resolution range. The purpose of this teaching is to enable students to use the Cauchy integral formula to complete the calculation of the weekly integral. The teaching focus is to let the students grasp the use steps of the Cauchy integral formula in theory. Before the class, the teacher will present the content in a short micro-course video and send it to the online platform, so that students can check it at any time and solve the difficulties independently. In order to ensure the steady improvement of the teaching effect, students can independently learn the basic knowledge, understand the application steps of Cauchy's integral formula, and accurately calculate the complex integral-product function with only one singularity in the weekly range. At this time, the teacher can add exercises to guide the students to think, let the students cooperate on a group basis, and actively discuss, this method can not only digest the knowledge, but also further enhance the students' ability to unite and cooperate.

3.3. Class finishing

Perfecting teaching design and resource allocation, innovative teaching methods and measures, teaching evaluation and reflection, optimizing teaching models, and highlighting teaching achievements are the key contents of after-school finishing, and at the same time, accelerate the professional development of teachers to some extent. After class, the teacher should sort out the difficult problems, select some typical exercises and strengthen the students' practice. In addition, you can assign economic problems and management problems in cases or real life, and encourage students to study and analyze through classroom mathematics. For example, select the sales price, cost amount, and profit function of an enterprise product, so that students can use the calculus knowledge to settle the marginal profit and maximum value of the enterprise product. The teacher can also increase the difficulty of the problem, only supply one sales data and financial statements, let the students organize and calculate by themselves, use the software to settle the cost function and the profit function value, and then calculate the marginal profit and maximum value. Let students

deal with practical problems through different kinds of subject knowledge.

4. Flipping classroom implementation focus

4.1. The quality of micro video creation

In order to make the video look good, we need to pay attention to the following aspects [6]: First, the time in the process of creating a video can not be too long, students will feel tired and prone to irritability. Second, the video content should not be too complicated. To be simple and clear, it is necessary to discuss a knowledge point and explain this knowledge point as much as possible. Third, the video style should be novel, not only in words, but also in animation, color, audio, etc. to stimulate the sensory nerves of the students, relieve fatigue, and better master the knowledge. Fourth, the difficulty of the test questions should be moderate. Usually there are three or five less difficult questions in the whole test question, which highlights the design interaction.

4.2. Creating learning platform interactivity

The video fully demonstrates the versatile features during playback, such as replay and rewind. Improve the intelligent level of the platform, the system can record and organize which videos the students watched in detail, so that the teacher can grasp the students' learning situation and improve the teaching results. For more difficult topics, the teacher can complete the explanation on the platform, integrate the platform with instant messaging software, and enhance the implementation effect. When using the interactive platform, use QQ, WeChat and other chat software to open text and video communication, and also set up group chat, so that learning efficiency is further improved.

4.3. Enhance students' self-directed learning awareness

Create a comfortable and relaxed learning environment where teachers and students are equal, understanding and trusting. Encourage students to express their thoughts and opinions, and bravely question teachers and textbooks. Create conditions for students to broaden their innovative thinking, so that students have the spirit of positive thinking and courage to try.

Conclusion

With the continuous development of information technology, flipping classroom broke the teacher-centered phenomenon, transformed into a student-centered classroom atmosphere, and overturned the traditional interpretation form. In addition, the flipping classroom is more strict on the quality of the teacher. The teacher must do all the preparatory work before class, and continue to organize and improve after class to guide students to collaborate, explore and innovate. Since the application of the flipping classroom has not only helped students to better grasp the knowledge points, but also strengthened the awareness of students' unity and cooperation and made progress together.

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