

Exploration of Autonomous Cooperative Learning Model in Mathematics Teaching in Secondary Vocational Schools

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Abstract: Under the background of teaching innovation, secondary vocational education has also received more attention. In the current mathematics teaching practice in secondary vocational schools, the teaching mode of combining unified teaching with students' independent learning is often adopted. Although this teaching mode has certain teaching advantages, it also has many teaching disadvantages. In the final analysis, because the students in secondary vocational schools often have weak mathematical foundation, they often can't keep up with the progress of mathematics teaching in the process of unified teaching. As a result, there are many problems and puzzles in mathematics autonomous learning. At the same time, mathematics itself is too abstract and obscure, which in the long run will make many students lose their desire and motivation to learn mathematics. At this time, the independent cooperative learning mode came into being. Through scientific grouping of students, cooperative learning enables students to achieve something on the basis of jointly discussing mathematical problems and dealing with mathematical problems, and ensures that each student can not be disconnected or left behind in mathematical learning. Cooperative learning is a relatively innovative and effective teaching method in current mathematics teaching practice in secondary vocational schools.

1. Introduction

In the current mathematics teaching in secondary vocational schools, teachers often focus on relying on mathematics teaching to cultivate and strengthen students' logical thinking ability, problem inquiry ability and innovation ability, but they often lack the establishment and cultivation of students' team consciousness, and divide the cultivation of team spirit into the responsibility of other disciplines. This idea is extremely incorrect. It is precisely because the knowledge points of mathematics are complex and abstract, which is more difficult, so mathematics learning needs to pay more attention to the cultivation of students' team spirit and actively carry out independent and cooperative teaching.[1]At the same time, cooperative learning can effectively help students to strengthen the sense of competition and exploration in the process of mathematics learning, and close the cooperative relationship within the group, so as to effectively activate the cooperative spirit of students and exercise their communication ability. This article first makes a scientific analysis of the

current situation of mathematics teaching practice in secondary vocational schools, and then puts forward corresponding views on "scientific grouping". Finally, combining the concept of scientific grouping with the current situation of mathematics teaching in secondary vocational schools, it puts forward feasible suggestions on how to effectively implement the autonomous cooperative learning model.

2. Analysis of the current situation of mathematics teaching in secondary vocational schools

The learning of mathematics is very different from that of other disciplines. After all, mathematics often causes headaches to students because of its complex knowledge points and abstract theoretical ideas. It is precisely because of these reasons that students' mathematics learning is not effective, which often leads to the embarrassing situation of getting twice the result with half the effort. Therefore, in combination with the current mathematics teaching practice in secondary vocational schools, there are many teaching problems that need to be solved and explored in secondary vocational school mathematics teaching.

2.1. The mathematics teaching model in secondary vocational schools is out of line with the current students' development needs

As the saying goes, "There are no two identical leaves", each student will have its own unique characteristics and highlights when learning mathematics. In the process of implementing mathematics teaching practice in secondary vocational schools, many teachers lack the practical training of students' teamwork ability, problem innovation ability and knowledge exploration ability. Especially in the context of exam oriented education, teachers tend to pursue students' mastery of math exam oriented skills too much. Therefore, It is more necessary for teachers to apply the autonomous cooperative learning model to secondary vocational mathematics teaching in mathematics teaching practice to guide students to find mathematical problems, explore mathematical knowledge, analyze solutions, master and use mathematical knowledge independently in groups, so as to achieve collaborative progress and common development of mathematical abilities[2].

The mathematics teaching mode in secondary vocational schools lacks certain development of the times. Under the background of the continuous promotion of quality teaching, the current mathematics education in many secondary vocational schools still follows the old way of mathematics teaching, guiding students to carry out blind mathematics learning, a large number of exercises, "a speech class", etc., which will make the students' performance in mathematics learning in secondary vocational schools be greatly affected. In addition, children in middle schools are in the period of puberty. During this period, they are likely to be bored with the unattractive math learning, or even take the bad road of dropping out of school without wanting to learn. Therefore, in such an environment, in order to effectively improve the teaching effect of mathematics in secondary vocational schools, teachers need to pay more attention to the infiltration and cultivation of students' mathematical core literacy in teaching practice. Therefore, teachers need to actively explore the true meaning of autonomous cooperative learning mode, apply its subtlety to mathematics teaching, and achieve the practical cultivation and enrichment of students' mathematical core literacy.

2.2. There are many problems in the practical teaching of mathematics in secondary vocational schools

In the teaching of mathematics in secondary vocational schools, teachers should always put students' mathematical knowledge understanding ability, mathematical problem analysis ability, knowledge exploration ability, thinking innovation ability and team cooperation ability in the first

place in teaching practice. However, in the actual mathematics classroom teaching, the teacher did not fully take into account the students' real mathematical learning obstacles and learning needs, and still used the "one speech" classroom to force the knowledge to the students. The monotony and abstraction of mathematical knowledge make the students' psychological emotions more resistant and exclusive to mathematical learning. Moreover, the mathematics learning foundation of secondary vocational school students is relatively weak. Many teachers often teach too fast in the process of mathematics teaching, which makes many students fall behind in the big army of mathematics learning, so the polarization of teaching situation is very obvious.

3. Scientific cooperation and group teaching

Scientific grouping needs to adhere to the fundamental premise of "homogeneity between groups and heterogeneity within groups". The so-called group homogeneity means that the overall learning level and learning ability of each group divided by the class are basically equal, such as the number of group students and the effective competition between group students. Homogeneity between groups can provide a strong guarantee for students' fair competition in mathematics learning. There will be no such undesirable phenomena as great disparity in strength between groups and competition between you and me. Instead, groups will be evenly matched, thus forming active competition and greatly enhancing students' initiative and enthusiasm in mathematics learning.

The intra group heterogeneity means that students in autonomous learning cooperative groups should have their own characteristics, because there are certain deviations in students' various abilities. Each student has different learning goals and starting points, and each student is an independent individual with its own characteristics. The same mathematics teaching will also show different teaching effects. The difference of students in the group is also one of the key manifestations of heterogeneity within the group. Practicing the premise of grouping heterogeneity within the group can help students maintain their own essential characteristics and facilitate the implementation of personalized teaching. At the same time, different learning characteristics and learning differences can also enable students in the group to achieve diversified development, more see the advantages of other group members, so as to learn from each other and optimize their learning ability. In addition, students with different abilities are more likely to have a fierce collision in thinking in the process of jointly discussing and solving mathematical problems, which may lead to innovative problem solving methods.

Therefore, in the penetration and application of autonomous cooperative learning mode, if we can grasp the grouping premise of "homogeneity between groups, heterogeneity within groups", comprehensively analyze and grasp the students' mathematics learning situation, and finally divide the class students into groups with balanced strength, we can lay a solid foundation for the effective application of autonomous cooperative learning mode in mathematics teaching. In the mathematics teaching of secondary vocational schools, teachers need to actively guide the teaching of students in the group, fully tap the students' mathematical potential, design a "help plan" for students who have gaps in learning level, and guide students to help each other, learn together, and solve mathematical problems together in mathematics learning, so as to achieve a good situation of coordinated development and common progress. At the same time, teachers can also design inter group selection, make full use of the characteristics of "homogeneity between groups", guide the group to compete fairly, so that each group can make further progress in learning, and help students improve their overall mathematical ability.

4. Analysis on the application of autonomous cooperative learning model in mathematics teaching in secondary vocational schools

4.1. Strengthen preview work and improve cooperation efficiency

The learning of mathematical knowledge is more abstract and complicated, which is often obscure and incomprehensible to students, so it is difficult to learn. Therefore, if teachers want to solve the problem of students' weak mathematical learning ability in secondary vocational schools, they should seek to change the traditional integrated teaching of mathematics. Therefore, teachers can encourage and guide students to have an effective preview before learning mathematical knowledge, have a general understanding of the mathematical knowledge that needs to be mastered, grasp the key points and difficulties of knowledge learning, and effectively improve students' mathematical learning efficiency.

In the mathematics teaching practice of secondary vocational school, grasping the scientific implementation of students' mathematics preview work can make students clear the key points and difficulties of classroom mathematics learning in the process of self-exploration and learning of mathematics knowledge, so that listening to the lessons in mathematics classroom is more targeted and targeted. At the same time, for students' self-preview link, teachers also need to fully mobilize the initiative of mathematical knowledge preview and exploration between groups, encourage students to actively discuss their own learning obstacles and learning problems in the preview link with group members, which can not only strengthen the effect of students' mathematical knowledge preview, but also increase the opportunities for mutual learning among group members, and achieve the common progress and development of students in the group. In addition, teachers can also make clear the key points of their classroom teaching and which part of knowledge should be explained and emphasized more clearly according to the discussion of the problems in the students' group math preview, so that the learning efficiency of students and the teaching efficiency of teachers can be both improved.

4.2. Create problem situations and guide students to learn independently

The effective application of autonomous cooperative learning model in mathematics teaching practice in secondary vocational schools cannot be separated from the assistance of other diversified teaching methods. For example, in the development of mathematics teaching, teachers can use the question setting teaching method to create problem situations for students' learning of mathematical knowledge, so that the autonomous cooperative learning model can be better used in mathematics teaching. Because mathematics contains a lot of rational thinking and belongs to a typical science discipline, effective question setting can better stimulate students' desire to explore and motivation to learn mathematical knowledge. The key to effective question setting is to create problem situations that fit mathematical knowledge for students, so that students can actively explore the application of mathematical knowledge under the guidance of questions. During the process of creating the problem scenario, it is essential for teachers to have a comprehensive understanding of students' mathematical learning conditions. They should combine students' current interests in learning and scientifically design mathematics problems with gradients. This approach helps students analyze and explore mathematical knowledge in a progressive manner. The creation of the problem scenario should also be closely based on students' cognitive abilities, incorporating real-life situations to effectively establish mathematical problem scenarios. Building upon this foundation, the self-directed cooperative learning mode should be fully utilized, guiding students to collectively explore and analyze mathematical problems in small groups. This will not only enable students to cooperate with other students in the process of autonomous learning and exploration, but also strengthen the

application and practical ability of students' mathematical knowledge, and fully tap students' mathematical learning potential.

4.3. Respecting students' differences and carrying out targeted teaching

In terms of teaching mathematics in vocational schools, teachers should not only focus on the innovation and optimization of their teaching philosophy and teaching methods but also enhance their understanding and awareness of students' mathematical learning abilities. They should have a clear understanding of the differences in mathematical learning among different students. Only in this way can they lay the foundation for the effective implementation of self-directed cooperative learning mode and make the implementation of this mode more targeted and purposeful. This will truly unleash its tremendous potential in mathematics teaching and enhance the overall mathematical abilities of the students in the class.

Therefore, in mathematics teaching practice, teachers should fully perform the role of "leader" in teaching, and set targeted teaching content and teaching objectives for students at different levels. For example, students who are good at mathematics learning in groups can be assigned high quality topics to tap students' mathematical learning potential, and guide them to help students who are not good at mathematics learning. The process of helping other students learn is also the process of consolidating and strengthening their basic mathematical knowledge. For students with weak mathematical learning foundation, teachers mainly guide and encourage teaching, and design more basic learning tasks for students based on their mathematical knowledge, so that they can achieve mathematical learning goals through cooperation and autonomous learning, so that each student can gain something in the process of mathematical learning. In the process of practice of autonomous cooperative learning mode, teachers must clearly grasp the differences existing in students' mathematical learning, actively implement differentiated and personalized teaching, integrate the layered teaching concept, and design more targeted and specific teaching content in combination with the mathematical learning needs of students at different levels, so that each student can learn corresponding mathematical knowledge and gain a sense of achievement under the autonomous cooperative learning mode of mathematics, So as to help students in mathematics learning progress and development.

5. Conclusion

In a word, the autonomous cooperative learning mode is widely used in the current teaching practice of the subject, so if we want to play a more powerful role in the mathematics teaching practice of secondary vocational schools, teachers should first fully understand the bottlenecks and defects in the mathematics teaching of secondary vocational schools, and at the same time, we should deeply explore and analyze the true connotation of the autonomous cooperative learning mode, so as to scientifically group, Give play to the role of autonomous cooperative learning mode, enhance the effectiveness of mathematics teaching in secondary vocational schools, and improve the quality of students' mathematics learning.

References

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