

## Research on the Innovation of Mathematics Teaching Strategies in Senior Middle Schools

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### Abstract

Mathematics is an important subject in high school education, but the particularity of high school mathematics leads to low interest in learning and poor learning. Therefore, high school mathematics teaching should adopt scientific teaching methods, diverging students' thinking, stimulating students' desire for knowledge, breaking the shortcomings of traditional thinking, and cultivating students' innovative ability, thus promoting the overall improvement of students' academic performance and comprehensive quality. As a math teacher in high school, we must pay more attention to cultivating students' innovative ability.

### Keywords

High school mathematics, teaching strategy, innovation research.

### 1. Introduction

The educator Liu Fonnian pointed out: "As long as there is a new meaning, new ideas, new ideas, new designs, new intentions, new practices, and new methods in learning, we can be called creation. We must broaden the scope of creation. Some, don't look too mysterious." It can be seen that for mathematics teachers, it is of great significance to cultivate students' innovative ability as the focus of teaching in teaching[1].

### 2. Research strategy

#### 2.1 Determine teaching objectives and develop students' innovative ability

First of all, we must formulate clear teaching objectives so that students can form a series of learning plans in mathematics learning and be able to standardize their learning behaviors. Secondly, teachers should highlight the difficulties in teaching and reflect the pertinence of mathematics teaching so that they can cultivate Students' ability to innovate. High school mathematics is more difficult, and students are more difficult to understand. High school fast-paced teaching leads to low enthusiasm for students' mathematics learning, but the most important factor is that students' learning methods are too backward and not innovative. Therefore, the teacher's teaching content should highlight the primary and secondary knowledge, guide students to think more, analyze more, summarize their learning methods, and constantly innovate learning methods[2].

For example, when learning the "Linear Equations" lesson, the teacher first guides the students to determine the learning objectives, that is, to grasp the method of deriving the line equation from the point and slope of the known line, to grasp the point equation of the line equation, two-point, Oblique, intercept, and general, and master their respective adaptation range, can be skilled in the inter-formation between various equations. In addition, students can skillfully find various forms of linear equations based on known conditions, and think more, practice more, and solve problem solving methods in the process of solving equations. In the course of teaching, teachers can present similar questions to make the teaching objectives of this section more clear. For example, if a straight line passes through point A (-2, 2) and the area of the triangle enclosed by the coordinate axis is 1, what is the equation for this line? Through clear teaching objectives and deepening of examples, mathematics teaching can be made more explicit, and students can gradually develop habits that are good at summarizing learning methods, and then cultivate students' innovative ability.

## 2.2 Actively carry out teaching reflection and guide students to learn to innovate

Influenced by the test-oriented education system, high school plays a very important role in China's education and teaching system. High school learning pressure, heavy tasks, and limited classroom learning time directly affect the teaching effect of mathematics. Therefore, in the teaching of high school mathematics learning methods, teachers should guide students to take advantage of the learning time after class, strengthen after-school review, and actively carry out teaching reflection, so that students can actively reflect on their learning behaviors after class, and do a good job. Study notes, discover and summarize your own problems in learning, and be able to make positive corrections so that students can learn to innovate[3].

First of all, teachers should actively reflect on their teaching behavior in teaching, and then guide students to use their wrong questions to reflect on their learning behavior. Through this method, students can re-cognize the problem after solving the problem, recognize the nature, type and solution method of the wrong question, thus forming a more systematic learning method, so that they can quickly do when encountering such problems. Respond to improve the accuracy of students' problem solving and improve their ability to innovate. Secondly, in the high school mathematics teaching, the teacher should also guide the students to listen carefully in the class, keep up with the teacher's lecture ideas, frequently read the wrong questions and class notes before and after the class, review and consolidate repeatedly, master the learning of similar problems. method. In addition, the teacher should also guide the students to learn from the inconsistency, often do the variant questions of the example, let the students learn to innovate, not only promote the students' absorption and understanding of knowledge, but also improve the efficiency of students' mathematics learning.

Review is an important part of high school mathematics learning. It is mainly completed by students themselves. Students can complete their review and develop their ability to innovate. Therefore, teachers should guide students to review after class. However, reviewing to avoid blindness, to selectively review knowledge, to guide students in the review of their own understanding of the problem, do more, more practice, more thinking; for more vague content, please read the class notes or teachers Actively communicate with classmates and develop a good habit of self-reviewing. Invisibly let students learn to innovate and master good mathematics learning methods.

## 2.3 Scientific use of exercises to help students consolidate what they have learned and enhance their ability to innovate

Mathematics is an abstract discipline, which greatly increases the difficulty of high school mathematics teaching. Therefore, in high school mathematics teaching, teachers should use practical exercises to help students consolidate the knowledge they have learned and enhance their ability to innovate. The college entrance examination plays a vital role in China's education system. In order to better cope with the college entrance examination, all kinds of examination materials are continuously integrated into the market, but the differences between the data are large, and there are many crude materials that are not helpful. It will also have an adverse effect on the learning direction and learning habits of students. Therefore, in high school mathematics teaching, teachers should scientifically select after-school exercises and apply their science to classroom teaching to improve students' ability to solve mathematics problems[4].

High school students are the successors of the motherland, and the cultivation of students' innovative ability and comprehensive quality is of paramount importance. Therefore, in high school mathematics teaching, not only must students develop the ability to solve mathematics problems, but also cultivate students' ability to use knowledge and use knowledge to solve practical problems, and promote students' ability in all aspects. Therefore, teachers should scientifically select exercises with high applicability and application, and help students to summarize learning methods and rules in these exercises to improve students' innovative skills.

Influenced by individual differences, students' mathematics learning and comprehension ability are very different. When arranging exercises, the teacher should combine the students' differences and teach them according to their aptitude. For poor students, teachers should arrange some basic

exercises to strengthen students' basic knowledge. For excellent students, teachers can arrange some extended and open exercises to expand students' thinking and improve students' innovative ability. It also trains students' comprehensive abilities. In addition, in order to help students better adapt to future work and study needs, teachers should guide students to combine mathematics and social life, often participate in social practice, expand students' mathematical thinking, and improve students' mathematical ability.

### 3. Conclusion

In the high school mathematics teaching, the cultivation of students' creative ability requires the joint efforts of teachers and students. However, as the most trusted teaching staff, teachers should shoulder the important mission of teaching guidance. Cultivate students' sense of innovation in mathematics teaching, promote students' understanding and absorption of knowledge, improve students' motivation for mathematics learning, enable students to gradually develop regularity in mathematics learning, master correct learning methods, cultivate students' innovative ability, and promote The efficiency of self-learning continues to increase.

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