

An Innovative Exploration on Teaching and Learning Management in Secondary School Mathematics Classrooms

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Abstract: In the new era of secondary education, higher demands have been placed on the management of mathematics education. Mathematics education is a major national discipline program, and its benefits and value are obvious. In the management of mathematics classroom teaching, the curriculum and teaching content need to be improved. At the same time, the status and role of teachers in mathematics teaching have attracted more and more attention. On this basis, this paper analyzes in depth the deficiencies in secondary school mathematics teaching management in the new era, and explores how to better carry out secondary school mathematics teaching management.

Keywords: Secondary School Mathematics; Classroom Teaching Management; Innovative Strategies

Introduction

With the deepening of educational reform, the innovation of secondary school mathematics classroom teaching management is particularly important. The traditional teaching mode has been difficult to meet the needs of modern education, especially in the cultivation of students' innovative thinking and practical ability there are many deficiencies. Therefore, this paper aims to explore the innovative methods of secondary school mathematics classroom teaching management, in order to provide educators with some useful references.

1. Deficiencies in secondary school mathematics classroom teaching management

In the process of secondary school mathematics classroom teaching management, it is not difficult to find some existing problems, which may have a negative impact on the learning effect of students as well as the quality of teachers' teaching.

Firstly, classroom discipline is not maintained strictly enough, which leads to some students being easily distracted in the classroom or engaging in some activities not related to learning, thus affecting the learning atmosphere of the whole classroom. Secondly, teachers' interaction and guidance in the classroom are relatively single and lack of diversified teaching methods, which makes it difficult for some students to maintain sustained interest and attention. In addition, the allocation of classroom time is not reasonable enough, teachers spend too much time on some parts of the class, while other important parts are rushed, which leads to students' lack of in-depth understanding of the knowledge points. Finally, there are problems with the arrangement of homework and tutoring after class, and some students do not get timely feedback and help after class, which affects their consolidation and mastery of knowledge.

Specifically, the laxity of classroom discipline may cause some students to engage in some irrelevant activities in class, such as chatting privately and playing with cell phones, etc. These behaviors not only distract their own attention, but also interfere with the surrounding classmates, thus affecting the learning atmosphere of the whole classroom. If the teacher's interaction and guidance in the classroom is too single, such as always adopting the traditional lecture-style teaching and lacking interaction and discussion, students may feel boring and find it difficult to stay focused for a long time. If the allocation of class time is not reasonable, for example, spending too much time on one knowledge point while rushing through another important knowledge point, this may lead to students not having a deep enough understanding of certain knowledge points, or even creating knowledge gaps. If the arrangement of homework and tutoring after class is unreasonable, such as the amount of homework is too large or too difficult, and the tutoring is not timely and effective, this will lead to some students not getting timely feedback and help after class, thus affecting their consolidation and mastery of knowledge.

In order to improve these deficiencies, teachers can take the following measures: first, strengthen the management of classroom discipline to ensure that every student can stay focused in class and create a favorable learning environment. Secondly, teachers can adopt a variety of teaching methods to increase students' participation and interest. In addition, class time should be reasonably arranged to ensure that each knowledge point can be fully explained and practiced. Finally, after-class homework and tutoring should be more personalized and

timely, and appropriate help and support should be provided for the different needs of students to ensure that every student can be effectively consolidated and improved after class. Through these measures, the quality of secondary school mathematics classroom teaching management can be effectively improved to promote the overall development of students.

2. Innovative Strategies for Improving Teaching Management in Secondary School Mathematics Classrooms

2.1. Constructing a student-centered teaching management mode

Building a student-centered teaching management model requires a radical change in the traditional classroom teaching management. In traditional classroom teaching, the teacher often plays the main role, while students are in a passive state of accepting knowledge. This model often limits the development of students' initiative and creativity. In order to break this situation, teachers must change their roles from mere knowledge transmitters to guides and facilitators to help students better master knowledge and develop their independent learning ability. Specifically, the following measures can be taken to realize the student-centered teaching management model:

One is to design student-centered classroom activities, such as cooperative group learning and project-based learning. Through these activities, students can take the initiative to acquire knowledge in the process of cooperation and communication. In cooperative group learning, students can discuss in groups and solve problems together, thus developing their teamwork and communication skills. And in project-based learning, students can apply theoretical knowledge to specific situations through actual operation and practice, so as to deepen their understanding and mastery of knowledge, so that students can not only better understand abstract concepts, but also improve their hands-on ability and problem-solving skills.

Secondly, encourage students to actively raise questions and guide them to find answers through independent exploration. Teachers can design some open-ended questions to stimulate students' curiosity and desire to explore. For example, by setting some challenging questions, teachers can prompt students to think and take the initiative to find ways to solve problems. This can not only develop students' independent thinking ability, but also enhance their interest and initiative in learning. Teachers can encourage students to speak up in class and share their ideas and insights, thus creating a positive and interactive learning atmosphere. In this way, students can not only acquire knowledge, but also learn how to solve problems independently, laying a solid foundation for their future studies and life.

Third, use positive evaluation skillfully. In the secondary school mathematics classroom, it is very important to help students build up their confidence in learning mathematics. Cultivating students' self-confidence can prompt students to take the initiative to cooperate with the teacher, broaden their knowledge base and ensure their own future development in mathematics. For this reason, it is important to emphasize the diversity of evaluation methods in the teaching process, to make good use of affirmative evaluation, and to explore and affirm students' potentials from different angles. When students feel that they have been recognized by the teacher, they will be more conscious of classroom discipline and self-improvement in a good classroom atmosphere. At present, evaluation methods mainly include online comprehensive assessment and student self-assessment. For example, during class, many teachers give students a wrong answer. However, the scientific approach should be to point out the most outstanding aspects of the students' answers, for example, their courage in answering the question or the correct guidance of the problem-solving method. Positive evaluation can motivate students to explore actively. Therefore, teachers should use positive evaluation methods wisely in the teaching and learning process.

2.2. Optimize classroom teaching management by using information technology

With the rapid progress of information technology, the field of classroom teaching management has ushered in unprecedented opportunities. Teachers can significantly improve the efficiency and management of teaching with the help of various information technology means. The following are some specific measures:

Teachers can make full use of multimedia technology and rich network resources to make classroom teaching content more colorful and lively. Through these advanced technological means, mathematical concepts that are originally abstract and difficult to understand can be visualized and displayed in a visual way, thus greatly enhancing students' interest and enthusiasm in learning. For example, complex mathe-

mathematical formulas and theorems can be made vivid and easy to understand with the use of animation and video, while interactive online exercises and simulation experiments can enable students to master knowledge in practice and further stimulate their enthusiasm for learning. In addition, teachers can also interact with students in real time through the online platform to answer their questions and provide personalized tutoring, thus further enhancing the teaching effect. Secondly, in order to meet the needs of modern education, it is particularly important to establish a well-functioning online learning platform. The platform will realize the integrated management of pre-course pre-study, in-class interaction and post-course review, enabling students to complete all learning tasks in a unified system. Through such a platform, students can study anytime and anywhere, no longer restricted by time and place, and can flexibly arrange their study plans according to their own learning progress and time schedule, thus improving their learning efficiency. For the pre-class pre-study part, the platform can provide rich learning resources, such as video lectures, e-textbooks and online tests, to help students master the necessary basic knowledge before the formal class. In the interactive part of the class, teachers can interact with students and answer their questions through real-time videos, discussion forums and online Q&A to enhance the interactivity and fun of the class. For the revision part after class, the platform can provide homework, quiz and mock exams to help students consolidate what they have learned, and identify and make up for deficiencies in their learning in a timely manner. In addition, the platform can also record students' learning situation and form detailed teaching reports, so that teachers and parents can keep abreast of their academic status and provide targeted counseling. Through this integrated learning management approach, students can better grasp the learning initiative, improve learning results, and ultimately achieve better learning outcomes. Finally, big data analysis can be used to realize online monitoring and in-depth analysis of students. Through the statistical analysis of the experimental results, it can enable teachers to better understand the learning situation of students and find out the problems and deficiencies in their learning. In this way, teachers can quickly adjust their teaching strategies to fit the needs of their students. In this way, more personalized teaching can be achieved, and a more appropriate teaching plan can be formulated for the unique needs and characteristics of each student, thus significantly improving the teaching effect.

2.3. Create a positive classroom atmosphere

Classroom atmosphere has an extremely important influence on students' psychological state and learning effect. A positive, relaxed and happy classroom atmosphere can greatly promote students' learning enthusiasm and efficiency. Therefore, teachers should strive to create such a classroom environment, the specific measures can include the following points: First, in the education process, it is crucial to establish an equal and respectful teacher-student relationship. Teachers should fully respect the opinions and views of each student and encourage them to speak out and express their ideas. This practice not only enhances students' self-confidence, but also enables them to participate more actively in discussions and learning in class. When students feel the teacher's respect, they will be more willing to share their insights, thus forming a positive and interactive classroom atmosphere. Teachers' encouragement and support are the source of motivation for students' continuous improvement, which helps to cultivate their critical thinking and independent thinking ability. Secondly, students' interest in learning can be effectively stimulated by designing various interesting games and competitions. These activities not only enable students to learn in a relaxed and pleasant atmosphere, but also enhance their sense of teamwork. Through teamwork to complete tasks, students can learn how to communicate and collaborate with others, which is important for the development of students' comprehensive quality. In teamwork, students can learn from each other, complement each other's strengths and solve problems together. This kind of interaction not only helps to improve learning efficiency, but also develops students' social skills and leadership, laying a solid foundation for their future development. Thirdly, students should be recognized and praised for the progress they have made in a timely manner. Teachers should pay attention to each student's learning situation, point out students' strengths and progress in a timely manner, and give praise and incentives. This can not only enhance students' self-confidence, but also stimulate their learning motivation, so that students will work harder and more actively in their future learning. When students feel recognized by their teachers, they will be more confident and motivated to meet new challenges.

3. Conclusion

In summary, the innovation of secondary school mathematics classroom teaching management is a systematic project, which needs teachers to explore and practice constantly. By constructing a student-centered teaching management model, optimizing classroom teaching

management by using information technology and creating a positive classroom atmosphere, the teaching effect can be effectively improved and students' comprehensive quality can be cultivated. In the future, educators should continue to pay attention to the latest developments in education reform, constantly explore more scientific and efficient classroom teaching management methods, and contribute to the cultivation of innovative talents in the new era.

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