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Constructing an Efficient Classroom for Cultivating Junior Middle School Students' Mathematical key competencies

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Abstract: In order to implement the spirit of the 20th National Congress of the CPC, fully implement the educational policy of the CPC, complete the fundamental task of building morality and cultivating people, and further deepen the curriculum reform, the Mathematics Curriculum Standards for Compulsory Education (2022 Edition) was proposed, which strengthened the direction of curriculum education, and the cultivation of the key competencies of mathematics is very important. The construction of efficient classroom is a powerful guarantee to promote the overall improvement of students' key competencies. To this end, junior high school mathematics teachers need to change their teaching concepts, innovate teaching models, enrich teaching methods, and promote the construction of an efficient classroom for cultivating students' key competencies in mathematics.

Keywords: Junior high school students; Key competencies; Efficient classroom.

1. Introduction

China has entered the new journey of building a socialist modern country in an all-round way, and adheres to the priority development of education. Mathematics is one of the eternal and most important parts of school education. It has an irreplaceable position and has always been an important course for students to learn. At present, most of the teaching is aimed at improving the rate of entering a higher school. Teachers have outdated teaching concepts, single teaching methods, and most of the classroom teaching is indoctrinated. Students have low interest in learning, are not active enough, and lack innovation spirit and ability. In order to develop students' key competencies, it is of great significance to construct an efficient classroom for cultivating students' key competencies in mathematics.

2. Concept definition

2.1. Junior high school students

Junior high school students are studying in junior high schools. Junior high school students are in the early stage of puberty, with great changes in physical and mental aspects. They have made great progress in physical, learning psychology, emotion, will and character, but there are still many shortcomings. On the physical side, sexual awareness has sprouted, personality has become prominent, and heterosexual communication has changed greatly. In terms of learning psychology, the ability of observation, memory and logical thinking of junior high school students is not stable enough. In terms of emotion, junior high school students are more excited and less stable. Their subjective wishes are often contradictory to the objective reality, and they are easy to be self-righteous. In terms of willpower and character, the understanding of oneself is not accurate enough, and the determination is often great, but the action is very poor, so there is no unity between speaking and doing.

2.2. Key competencies

Key competencies are the necessary character, key ability and correct values to meet the needs of personal lifelong development and social development [1]. Mathematics curriculum should train students to observe the world through mathematical vision; Studying the world through mathematical thinking; Describe the core mathematical literacy of the world through mathematical language. Abstraction, operation and reasoning ability, space, data and model concepts, application and innovation consciousness, and geometry concept are the core qualities of mathematics curriculum in junior middle school of compulsory education [2].

2.3. efficient classroom

An efficient classroom is an efficient classroom or an efficient classroom. It is a classroom in which the efficiency, effect and benefit of classroom teaching reach a certain height. Specifically, it is a classroom in which the efficient teaching and learning tasks are completed, the teaching and learning process with good results is achieved, and the teaching and learning goals with high benefits are achieved within a limited classroom time [3].

3. Problems in the current efficient classroom of junior high school mathematics

3.1. Inverted class subject status and single teaching mode

Mathematics is a science that studies quantitative relations and spatial forms. Both teachers and students are participants in the teaching classroom. The classroom teaching after the new curriculum reform further emphasizes the leading role of teachers and the main role of students. The class is a collective. There are usually dozens of students in the whole class. Their scores are uneven and their learning abilities are different. Each student is an individual with distinctive personality.

However, many teachers carry out teaching activities in the same way, methods and requirements, which is obviously unreasonable. The wrong way for teachers to return the main body of the classroom to students. In classroom teaching, teachers return the main body of the classroom to students, not in classroom teaching. Teachers ask more questions and let students participate in answering, which is not actually returning the main body of the classroom to students. To make students become the main body, we must let students participate in the whole classroom and every link of the classroom, and let them return the essence of the main body through the guidance of teachers, group cooperation and communication, personal exploration, observation and thinking. In the mathematics teaching in Beijing, the teacher still performs alone and adopts the teaching of mathematical knowledge. The teacher speaks with great passion, but the students are indifferent, unable to actively participate in, and unable to deeply understand the learning, which must be the inversion of the main position in the classroom. This kind of classroom teaching mode is single and students learn passively, so that the efficiency of mathematics classroom teaching is not high, which is not conducive to the construction of efficient classroom.

3.2. Teachers attach importance to classroom form and despise classroom essence

Classroom teaching is an activity process in which teachers organize students' learning purposefully and systematically. Only the classroom teaching plan established according to the new curriculum standard, combined with the actual situation of students, can adapt to learners and achieve the goal of efficient classroom to cultivate key competencies. In junior high school mathematics classroom teaching, many teachers' teaching ideas are outdated and solidified. Classroom teaching is modelled, and the implementation of efficient classroom is only a formality, not focusing on the essence, which is divorced from the original purpose of developing efficient classroom. Nowadays, it is particularly important to follow the curriculum reform closely, learn the curriculum knowledge well, cultivate creative talents with ideals, abilities and responsibilities in the new era, and create efficient classrooms. Teachers follow the trend of the various efficient classroom models, ignoring the flexibility of the classroom, making classroom teaching stereotyped, affecting students' enthusiasm for learning, and attacking students' interest in learning. The learning quality of mathematics curriculum in junior high school should not be judged only by examination results, but also by teaching feedback, so that teachers can timely and accurately understand and master the students' learning situation. Only by mastering the students' current learning situation can we formulate a teaching plan suitable for students' development. For students, teaching feedback can help them effectively strengthen the learning effect, so that they can find their own problems and solve them. In the actual teaching process, some teachers ignored the influence of the curriculum on the students' values, and still focused on exam-oriented education. They only paid attention to the cultivation of students' knowledge and skills, and did not pay attention to the cultivation of students' key competencies ability. The efficient classroom constructed by teachers ignoring students' actual learning needs has certain limitations, which is not conducive to the cultivation of students' key competencies ability.

3.3. Low enthusiasm in class for the purpose of entrance examination

The current teaching is mostly centered on teachers and students, aiming at examination scores, and taking the final entrance rate as the ultimate goal. The classroom is completely dominated by teachers, and students' learning has become passive learning, losing the dominant position of students as learning, which is bound to affect students' interest in learning, reduce their learning efficiency, hinder the development of students' innovation ability and innovative thinking, and is not conducive to the cultivation of creative talents. For junior high school students, mathematical knowledge is relatively abstract. If teachers do not attach importance to the relationship between knowledge and reality in teaching, it is difficult to help students learn mathematics well, and students cannot flexibly apply the mathematical knowledge they have learned to real life. The current mathematics teaching still focuses on the purpose of entrance examination, pays attention to the level of achievement, and imprisons teachers' teaching innovation. Students' learning is only completed passively under the pressure of teachers and parents, resulting in students' low enthusiasm and learning efficiency in the classroom, which is not conducive to the construction of efficient classroom.

4. Building an efficient classroom for cultivating junior high school students' mathematical key competencies

4.1. Improve emphasis and change teaching philosophy

As mathematics teachers of junior high school students, they should seriously consider such issues as how to improve the teaching methods of mathematics in junior high school of compulsory education, what kind of teaching ideas to establish, which can promote the effective implementation of efficient classroom for cultivating key competencies. According to the requirements of the Mathematics Curriculum Standards for Compulsory Education (2022 Edition) and the characteristics of mathematics curriculum, teachers should pay attention to the organic combination of mathematics teaching and various courses, so that students can use mathematics knowledge to solve problems related to various subjects and mathematics. Teachers should be good at combining mathematics with real life problems, and promote students' ability to use mathematical knowledge to solve real life problems. In addition, students should be able to combine mathematical knowledge to enhance their ability to raise relevant problems, and cultivate their mathematical expression ability when solving these problems. Stimulate students' enthusiasm for learning and improve their interest in learning through various means. Interest is the best teacher. Being interested in courses will lead to their correct learning attitude and improve their learning awareness so as to achieve the goal of learning mathematics well.Teachers are the guides for students to learn mathematical knowledge and play a key role in their learning of mathematical knowledge. Teachers should avoid blindly pursuing short-term scores, improve their understanding, define mathematical teaching objectives, adopt a new teaching concept combined with reality, carry out teaching reform, and form innovative teaching that can stimulate and cultivate students' interest in learning, so as to

achieve a certain level of classroom teaching efficiency, effectiveness and efficiency, and complete the construction of an efficient classroom for cultivating junior high school students' mathematical key competencies.

4.2. Cultivate key competencies and innovate teaching mode

Develop the teaching objectives of cultivating key competencies and innovate the teaching mode. Each aspect of mathematics curriculum content corresponds to different key competencies elements. The teaching goal of cultivating key competencies should be formulated to make it run through and act on the whole teaching, so as to achieve the teaching goal of learning mathematics well and cultivating key competencies. Through the basic knowledge, basic skills, basic ideas and basic activity experience of mathematics, as the carrier of developing students' key competencies, students can improve their own key competencies through their ability to find, propose, analyze and solve problems. The formation of key competencies is not overnight, but through long-term targeted learning. The key competencies embodied in different learning stages is also different. We should pay attention to the consistency between the key competencies and the learning stage. We should set specific teaching contents, set teaching objectives in different areas of the subject, unit and curriculum, refine teaching objectives, and cultivate each element of the key competencies, so as to achieve the overall improvement of the key competency's ability. Mathematics learning can promote the development of social productivity. Mathematics is an important foundation for engineering technology, natural science and social science. The function of implementing quality education in mathematics education bears the fundamental task of establishing morality and cultivating people. Innovate the teaching mode, build an efficient mathematics classroom in junior high school, and cultivate students' key competencies. Teachers are highly effective in classroom teaching, which improves the efficiency, effect and benefit of classroom teaching. Use the innovative teaching mode that can stimulate students' interest in learning mathematics, enhance students' awareness of communication and cooperation, cultivate students' ability to think independently, dare to practice and innovate, form and develop key competencies, and achieve the goal of building an efficient classroom in junior high school mathematics and the goal of cultivating key competencies.

4.3. Enrich teaching methods and build efficient classroom

At present, classroom teaching is still the main means of mathematics teaching in junior high school, and it is very important to make full use of classroom time. The main body of learning is students, and the organizers and guides of learning are teachers. They cooperate with each other. Junior high school students are in the early stage of puberty. The short time of classroom concentration can stimulate students' enthusiasm for learning, make them have a strong interest in mathematical knowledge, experience mathematical thinking, learn basic mathematical knowledge, master basic skills and mathematical methods, cultivate students' positive emotions, attitudes and values, and gradually improve their key abilities and necessary character.[6] Teachers should make full use of technical means, learning resources, teaching activities and other aspects to promote the reform of mathematical teaching methods. By setting up inquiry-based homework that is connected with real life, we can cultivate the key competencies of mathematics discipline, help students consolidate their learning achievements, improve their ability to apply mathematical knowledge, and provide important impetus for the construction of efficient classroom. Teachers should reasonably use participatory, interactive, heuristic, lecturing, inquiry and other organizations to carry out teaching. Through integrating theory with practice, using rich teaching methods, we can build an efficient classroom, promote students' learning process of practice, cooperation, discussion and understanding in classroom learning, give full play to the educational effect of each teaching method, acquire mathematical knowledge efficiently, and develop students' key competencies efficiently.

5. Conclusion

In a word, classroom teaching is dominated by students and supplemented by teachers. Teachers must attach importance to the cultivation of students' key competencies. Teachers should actively reform and innovate classroom teaching, build efficient mathematics classroom, and comprehensively improve students' key competencies.

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