

Investigation and Research on Group Cooperative Learning in Junior High School Mathematics Teaching

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Abstract. Mathematics classroom under the concept of Curriculum Standard is one of the effective ways to cultivate students' autonomy, cooperation and inquiry. Cooperative learning is used to improve the efficiency of mathematics classroom. However, there are still some problems in the process of using it. One of the manifestations of some students in many schools is that they don't actively participate in group discussions in class, and the learning effect is obviously not high. Therefore, students in the mathematics classroom are analyzing the learning problems involved in the junior high school mathematics classroom at this stage, aiming at the existing effective methods and strategies, combining the characteristics of junior high school mathematics, and can use them to improve the efficiency of practical classroom teaching practice, so that group collaborative learning and junior high school mathematics classroom can be effectively integrated.

Keywords: group cooperative learning; Junior high school mathematics; Classroom teaching; Effective strategy.

1. Introduction

The mathematics classroom learning mode of students in junior and middle schools is usually to cooperate with the teacher's teaching, take the teacher as the center, and the students obey, so that they can master the solutions of basic questions in one class. However, it is difficult to use them flexibly after class, which leads to frequent mistakes in doing problems, or they did master the ideas and steps of solving typical examples in class at that time, and did not review them in time and effectively after class, which led to forgetting. In fact, the students did not master them firmly at that time. All these problems show that the current mathematics teaching methods need to be improved, and many practical teaching studies have proved that group cooperative learning can effectively improve this situation, accelerate the expansion of students' cooperative thinking and the development and improvement of innovative ability. Therefore, under the newly developed educational model, it is particularly important to discuss the cooperative learning of research groups.

2. The Concept of Group Cooperative Learning and Its Significance

2.1 The concept of group cooperative learning

The essence of group cooperative learning is that in order to achieve the common learning goals and tasks in junior high school mathematics classroom, teachers will assign students into specific groups according to the actual situation of students' mathematics learning, so that they can become a member of group cooperative learning. When group members actively participate in group activity teaching, teachers will simply group them according to their personal level. Generally, the number of group members is controlled at 2-6, and students of different genders will have different personalities. In mathematics teaching activities, a mathematics learning group with unity, cooperation and mutual assistance is constructed. They have the same group learning goal, which is also consistent with students' personal learning goal, so group cooperation allows them to work together for it. Problems encountered in the process of communication and cooperation, group discussions, joint research to solve mathematical problems, junior high school students in different group activities teaching, and gradually find effective and correct measures suitable for their own

2.2 The significance of group cooperation

Although there will be some problems in group cooperation in junior high school mathematics teaching, the emergence and development of any new thing needs to go through a process, and it will be improved and improved continuously in this process. With the continuous progress and development of society, win-win cooperation is the current situation. In line with the development of the times, fighting alone will be a prison, and cooperative thinking is the old way.

1. Good cooperative learning can cultivate students' cooperative spirit.

In today's society, science and technology are changing with each passing day, and most families are only children, so students' loneliness is getting stronger and stronger. They are more inclined to solve problems by themselves, or rely on the internet to solve problems when faced with them. Tall buildings in big cities also make it difficult for children to get together. Therefore, in school and classroom, we should give full play to the role of cooperative learning, which can cultivate students' teamwork ability and consciousness.

2. Good cooperative learning can cultivate students' communicative competence.

The ability of cooperation and communication between people plays an important role in the future social development. The cooperation and communication between students can not only help each other, but also enhance their feelings and help build an excellent class. Teachers should strengthen the cultivation of students' communication awareness, focusing on the stimulation of communication awareness, maintaining successful emotional experience, promoting the formation of communication emotions, and communicating the quality of students' role tasks. In this way, students' desire and interest in communication will be strong, so that students' communication possibility and communication ability will be improved.

3. Good cooperative learning can cultivate students' divergent thinking in mathematics.

You have a solution, I have a solution, exchange with each other, and each of us has two solutions, even more than two. Good group cooperative learning, like a brainstorm, is a collection of various ways to solve a problem, which can help students to think flexibly from various angles when encountering problems ^[2].

The advantages of group learning are not limited to this. As a front-line teacher engaged in teaching, this survey starts from the aspects of classroom atmosphere, learning effect and caring for children's physical and mental development, hoping to effectively use the problem analysis and strategies of this survey in middle school mathematics teaching.

3. The problems in Group Cooperative Learning

3.1 Lack of awareness of group cooperative learning in mathematics teaching

The learning path of junior high school mathematics is unpredictable and varied. Multi-solution to a math problem means that there are many ways to solve a math problem, and the answer may not be unique. The learning thinking mode of junior high school students is still not perfect, so there are still some difficulties for students to solve problems independently. The traditional educational thought leads to teachers not paying due attention to students' group cooperative learning, and even teachers cannot correctly understand group cooperative learning ^[3]. The reason is that teachers' educational ideas have not been innovated in time, and the educational methods are still stuck in the traditional teaching methods. The society, teachers, parents and even students themselves regard the classroom teaching of mathematics as the focus of learning, and rely unilaterally on the classroom teaching output of teachers, which can not solve the problems in time, thus restricting the development of students' mathematical thinking. In the traditional and rigid mathematics education, students gradually feel that mathematics is a difficult thing, which will make their understanding of mathematics more and more vague, thus affecting their enthusiasm for learning mathematics and limiting their development of innovative thinking in mathematics. When the learning effect of

mathematics learning is not improved and the results are not up to the ideal state, the consciousness of helping each other, uniting and loving each other and cooperating with each other declines.

3.2 The construction of group cooperative learning system in mathematics teaching is not yet mature.

In junior high school mathematics teaching, some teachers realize that group cooperative learning plays a vital role in students' mathematics learning, but in the construction of group system, there is a phenomenon of random mashup, which also restricts the development of students' mathematical innovative thinking and the imperfection of group cooperative learning mode. In the process of mathematics learning, junior high school mathematics teachers tend to ignore students' personal differences, students' mathematics learning status and other factors, and fail to set clear learning objectives and contents for students, resulting in insufficient ability of group members to explore mathematics problems, unclear division of labor among groups, and inconsistent mathematics learning objectives, which leads to problems in mathematics learning activities. As a result, students can't get a good development in group cooperative learning, their thinking development is limited, their grades can't go up, and the efficiency of class is reduced [4].

3.3 The status of teachers and students in group cooperation is not clear.

Neither teachers nor students can locate themselves clearly, but in group cooperation, guidance, participation, cooperation and communication are essential, and teachers and students are interactive. In the teaching process, teachers should establish a reasonable group cooperative learning team, based on a reasonable system. In the group mathematics learning process, mathematics teachers should clarify their classroom role in group activities and integrate the teaching ideas of guides and participants into group activities. Giving students help in time can make students wake up quickly from abstract learning, just like the geometric figure construction of junior high school students, teachers should guide students to establish solid geometry, discuss it in a group cooperation way, and complete the demonstration, so that students can get better play in collective cooperation [5]. Through the unity and cooperation among groups, students have a clearer understanding of themselves, thus developing good habits of mathematics learning and enhancing their interest in mathematics inquiry. In the process of group cooperative learning, we can help them find their own weaknesses in learning, and carry out targeted analysis according to these weaknesses, so as to find out their own learning priorities and difficulties, thus cultivating their mathematical summary and induction ability, logical thinking and innovation ability, and at the same time enhancing their keen ability, so as to make themselves better in the process of learning mathematics.

4. Analysis on Optimization Strategy of Group Cooperative Learning

4.1 Improve the awareness of group cooperative learning in teaching

For junior high school mathematics teachers, group cooperative learning is also an innovative classroom teaching method, which is an extremely important teaching method. In mathematics classroom teaching, group cooperative learning requires teachers to interact with students, fully understand students, take the initiative to help students find problems, analyze and compare with textbooks, actively improve and upgrade their teaching methods, and formulate a more targeted group cooperative learning system. Enrich your own teaching experience, so as to improve the sense of group cooperation between teachers and students, and enrich students' teaching experience [6], so as to promote students to have an example: Given that the two sides of an isosceles triangle are two of the equations $X^2-11X+300$, what is its circumference? According to the known conditions, students can solve the equation first, and the answer is 5 or 6, that is, the two roots of the equation are 5 and 6. Then, students can discuss actively in groups. Because the meaning of the question is not explained, there are two situations in which the waist of a triangle is 5, the bottom is

6 or the waist is 6 and the bottom is 5, and it is necessary to consider whether the sum of the two sides is greater than the third side and the difference between the two sides is less than the third side, that is, whether the length of the three sides meets the composition conditions of the triangle. Find the edge in an isosceles triangle: In an isosceles triangle, the given edge may be the waist or the bottom. Therefore, classified discussion is necessary. Mathematics group learning can make students think actively, participate in discussions, and finally find the answers to questions, strengthen the collective cooperation consciousness of members in group collaborative learning, stimulate students' enthusiasm for learning mathematics, and teachers give timely guidance, thus giving full play to the role of teaching itself.

4.2 To create a good classroom teaching atmosphere

In the process of mathematics teaching, group cooperative learning can help each member help each other, learn from each other's strong points, listen to others' opinions with an open mind, and gradually cultivate students' excellent quality of being willing to listen to valuable opinions, so as to achieve the purpose of improving their grades in coordination. This is an important work in the process of mathematics teaching. Teachers should combine the actual situation of students and students, based on the situation of group cooperative learning, grasp the students' knowledge of mathematics and mathematical theory, and carry out targeted counseling for students' group cooperative learning. For example, there are many ways to test the same content, and there are many ways to solve the same problem, which is what we often say. For a certain problem, some students have conducted many studies and discussions in group cooperative learning, which shows that the knowledge of this piece of content is not solid, and there is the possibility that the learning skills, methods and knowledge structure are not perfect, resulting in limited thinking development^[7]. In this case, teachers can't ignore it. They should carry out extended teaching for students, broaden their mathematical thinking, reflect on the group discussion and learn from their mathematics learning in time. In junior high school, math teachers should have enough patience to create a good atmosphere for classroom teaching and learning.

4.3 Improve the collective learning system, clear the role of teachers and students

In mathematics teaching, group cooperative learning should be scientific, and teachers should carry out effective grouping according to the real situation of students. In grouping, we should not ignore the differences between students, and the initiative among students. We should choose appropriate mathematics content for group learning in teaching, so that students can discuss and communicate better, thus stimulating their spirit of active exploration and thinking. In group learning, teachers should develop according to the actual situation of students. For some conventional basic contents, we should be good at group supervision and cooperative learning, and jointly establish a teaching goal suitable for the development of group members' mathematical thinking. For difficult mathematical questions, we should answer them through group cooperation, showing the group's ability of discussion and research, thus promoting the development of students' personal mathematical thinking. When teaching in group activities, the main purpose of math teachers is to cultivate students' sense of unity and cooperation and basic math skills, and the group leader and participants are the two roles of teachers. In the teaching process, we should timely dredge and guide the problems encountered in group cooperative learning, encourage group cooperative learning, and let those students with poor foundation have a positive exploration spirit in the group learning process, thus improving their math learning ability.

5. Conclusion

With the development of the times and the continuous improvement of the education system, the importance of innovative teaching mode in junior high school mathematics teaching is increasingly prominent, and group cooperative learning plays a significant teaching role in junior high school

mathematics teaching. Today in the 21st century, education in China has developed rapidly, but at the same time, it has exposed a series of problems, such as the lack of awareness of group cooperative learning in mathematics teaching, the immature construction of group cooperative learning system in mathematics teaching, and the unclear status of teachers and students in group cooperation. Cooperative learning is an educational system that aims at small-scale combination, encourages students to achieve a communication learning goal, and rewards the overall performance of the group. It is the most effective way to solve the above problems. Cooperative learning can not only improve students' mathematical thinking, but also cultivate students' logical reasoning ability. Students can improve their understanding of mathematics in group collaborative learning, thus significantly improving the effect of classroom teaching.

In junior high school mathematics teaching, group cooperative learning is an inevitable choice on the road of educational development. With the blessing of group cooperative learning mode, students can help each other in learning, learn from each other's strong points, gradually solve the obstacles encountered by junior high school students in their learning path, improve the efficiency of solving problems in junior high school mathematics classroom, and thus cultivate junior high school students' team spirit and collective consciousness. In the process of students' learning, junior high school mathematics teachers should work out a set of reasonable teaching plans under the background of vigorously promoting the new curriculum reform, and better apply group cooperative learning to the classroom according to the characteristics of mathematics subjects, so as to play a positive role and value, promote students' independent learning and cultivate cooperative consciousness.

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