2023 9th International Symposium on Social Science (ISSS 2023)
ISBN: 978-1-60595-422-6

The Practical Research of Mind Mapping in the Mathematics Bisection Classroom of Junior Middle School

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ABSTRACT

With the continuous reform of education, the focus of teaching has shifted from teachers' teaching to students' learning. In the divided classroom, students' learning autonomy and learning ability can be improved through students' internalization and absorption, discussion in separate classrooms and other links. Mind mapping can link knowledge points and help students clarify knowledge structure. This paper takes "review at the end of the chapter of unitary linear equation" as an example to explore the integration of split classroom and mind mapping in junior high school mathematics, optimize the teaching process, and establish an efficient classroom.

ANALYSIS OF RESEARCH STATUS

In 2014, Professor Zhang Xuexin put forward the split classroom for the first time and quickly popularized it [1], and his research achievements gradually increased. The research on the split classroom teaching model has brought a lot of new teaching ideas, new models and new ideas to the reform and development of various education stages in China. Split class means that a class is split in half. Half of the time is spent on explaining knowledge, and the other half is used for students to absorb, discuss and communicate, and discuss the content taught by teachers. For the first time, the concept of separated classroom discussion was proposed. Compared with the traditional teaching methods, the divided classroom is more flexible, allowing students to have enough time for personalized internalization and absorption between the teacher's lecture and the student's discussion. According to the discussion and feedback of students, teachers can understand the learning situation of students and improve the classroom quality.

Mind mapping is also called mind mapping. It is a new method of taking notes by using graphics [2] proposed by British scholar Tony Bozan in the 1960s, and it is a tool of image-based thinking. When Tony Bozan was in college, he found that with the increasing number of academic courses, his memory and learning ability were tested. So he wanted to go to the library to find books on how to use the brain, but the librarian recommended him books on medicine. He found this gap and began to read books on

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psychology, physiology and other aspects, He improved his notes, combined keywords with graphics, and made more people know mind maps through his speech on BBC radio. In the 21st century, mind mapping has attracted extensive attention from educators. The research in teaching has been very mature, and the research in the field of education has become increasingly rich. Mind mapping can not only promote teachers' teaching, but also promote students' learning, and has been widely used in primary and secondary education at home and abroad.

In recent years, there have been many explorations and research on the split classroom, but the integration of mind mapping in the split classroom has not been paid attention to. This paper discusses the integration of split classroom and mind map in junior middle school mathematics teaching and analyzes the application effect of mind map in junior middle school mathematics split classroom.

DEFINITION OF CORE CONCEPTS

Split Classroom

As the name implies, the split class literally means that half of the class is divided into one class, and half of the class is taken as the part of knowledge teaching, mainly for teachers to teach students to listen, while the other half of the time is used to increase the proportion of students' participation, so that students can ask questions and discuss, and share their views. For the first time, the concept of separate classroom discussion was proposed. Compared with the traditional teaching methods, the divided classroom is more flexible, allowing students to have a longer time to digest the knowledge they have learned, and more profound acceptance of knowledge.

Mind Mapping

Mind map is also called mind map. In essence, a mind map is a way to express thinking with images, which enables people to grasp the main structure of thinking more intuitively. Mind mapping helps to improve the confusion of knowledge points in memory. It can help people clear their minds when dealing with things and form a complete system.

ADVANTAGES OF MIND MAPPING IN MATHEMATICS BISECTION CLASS

Mathematics has a high degree of abstraction. If teachers explain the course content and its structure quickly, students need to quickly understand the framework of the course structure and master the relationship between the overall framework of the course and the specific content. With the introduction of mind mapping, this problem can be solved to a large extent. The mind map connects the scattered knowledge points in series, and summarizes the overall framework map of knowledge to help students complete the

systematic construction of knowledge points. In actual teaching, if we apply mind mapping, complete classroom design and use mind mapping to assist learning, we may get twice the result with half the effort. Try to apply mind mapping to mathematics bisection classroom, establish an efficient classroom, so that teachers can teach easily, students can learn happily and remember firmly.

The Role of Mind Mapping in Mathematics Teaching

As a thinking tool to express divergent thinking, mind mapping is of great help to teachers' teaching and students' learning. It can help teachers improve teaching efficiency and students' learning efficiency.

(1) The application of mind mapping in teaching can better play the role of students as the main body

The current learning requires students as the main body, so that students can participate more in teaching activities. Mind mapping, as a novel method, is applied to mathematics teaching. Compared with those boring mathematical definitions and formulas, it will undoubtedly attract more students' attention and improve their learning interest, so that they will not be deterred from facing more and more complex mathematical knowledge. By introducing mind mapping into mathematics teaching in junior high school, we can change the traditional teaching methods and educational concepts, enable students to communicate and learn, and improve students' participation in the classroom.

(2) Improve students' learning ability

Applying mind mapping to junior high school mathematics will help students sort out the complicated and scattered concepts, thus forming a complete knowledge system in their minds. The application of mind mapping is helpful to students' learning, which enables students to master more knowledge, which can be reflected in their scores, thus improving the quality of students' learning. When drawing a mind map, students need to select key words and think about them in a paragraph, which is also a way to cultivate students' abstract generalization ability.

(3) Mind mapping helps improve students' ability to solve problems

The knowledge of mathematics in junior high school is complex, but there are connections between these knowledges. Through the application of mind mapping, we can skillfully link this knowledge and use them more flexibly when solving problems.

(4) Facilitate teachers to teach better

Teachers can use mind maps to integrate scattered knowledge points, compare these knowledge points and find their connections and differences, so that they can be more flexible in the teaching process. When teachers really straighten out the relationship between these knowledges, they will not be disorganized or omitted in teaching, thus improving the efficiency of teaching. At the same time, let the students see the teacher's teaching ideas, and facilitate the mastery of the knowledge system. Give students a demonstration so that they can learn to use the mind map. On the other hand, mind mapping can also help teachers better find the loopholes in students' learning. Teachers can find the existing problems by looking at the mind mapping drawn by students, or

they can select the keywords of a certain branch to ask students questions to check the students' mastery of knowledge, so that they can master the students' learning situation, greatly improve the efficiency of evaluation, and make timely adjustments to teaching.

The Role of Mind Mapping in the Classroom

The core of junior high school mathematics is that students can master basic mathematical knowledge and basic mathematical ability after learning the course and improve mathematical thinking and logical thinking at the same time. The split class mainly divides the knowledge to be taught into detailed explanation knowledge and quick explanation knowledge, so that students can focus on learning knowledge, and pay more attention to discussion and communication while listening to the lecture. This easily causes students to absorb knowledge points not carefully enough, and the foundation is not solid enough. Applying mind maps to the split class can effectively solve this problem, and help students establish an overall framework, sort out the basic knowledge and grasp it more firmly.

PRACTICAL APPLICATION OF MIND MAPPING IN MATHEMATICS REVIEW CLASS OF JUNIOR MIDDLE SCHOOL

Through investigation and analysis of split classroom and mind mapping, this paper proposes a new teaching method, which combines split classroom and mind mapping, and is mainly used in junior high school mathematics classroom. It focuses on the application of mind mapping in junior high school mathematics split classroom and gives a specific teaching case of "review at the end of the chapter of unitary equation", providing new teaching ideas and specific teaching examples for front-line teachers.

Preliminary Preparation

(1) Drawing Teaching of Mind Map：Before asking students to draw a mind map, let them learn what the mind map is used for and how to draw it. The teacher demonstrates the specific operation of constructing the mind map to students.

(2) Layout theme：The teacher assigns the content to be discussed in the next lesson to the students, so that the students can know the knowledge points to be constructed in advance and complete the construction of a simple mind map before class. In the previous section of "Review at the end of the chapter on unary linear equation", the teacher determined that the theme of the mind map is unary linear equation and asked students to establish their own "unary linear equation" mind map before class.

(3) Reorganize class hours：Due to the difference in the curriculum capacity of each module of mathematics, teachers should reasonably arrange the time allocation and adjust the class hour arrangement under the split classroom teaching mode to form a teaching process suitable for "teaching internalization absorption discussion". During the

teaching of the course of "Review at the end of the chapter of unary linear equation", the course is divided into two class hours. One class mainly teaches definitions and solutions, and the other class mainly teaches the practical application of equations.

(4) Form a study group：The method of group cooperation is used to construct the mind map. Students are divided into multiple groups according to the number and seats of the class, assigned roles, and discussed in groups to share learning experience, find and propose problems, analyze and solve problems, and summarize methods.

(5) Change the evaluation method：Focus on process evaluation and give priority to encouragement.

Teaching Link

The teaching link is that teachers tell students "what to learn", "why to learn" and "how to learn" from the macro level.

The teaching link under the divided classroom reflects the simplicity and generality of knowledge output. It is necessary to leave enough space for students to think, focus on the key and difficult points, the framework and structure of learning content, and learning strategies and skills. At the same time, it should be noted that teachers and students in the teaching process must be clear that this process is a pure teaching process. There should be no interaction between students and students, and as far as possible, there should be no interaction between teachers and students. Even if there is a question that teachers need to ask, the question should also be a decorative question that students choose to answer collectively. The purpose is to help students have an initial impression of the teaching content, and to leave enough space for students to independently "dig" the details.

The first-class teaching:

The split class mainly focuses on the concept knowledge and simple application and shows how to sort out the knowledge framework and structure. Focus on reviewing the definition and solution of unary linear equation, and briefly review the practical application of unary linear equation. The main teaching process includes: ① The teacher carefully explains the definition and solution of the unary linear equation, combs the knowledge structure and framework: find the key knowledge (concept definition) through mathematical exercises, and delete the non-key knowledge (details) of the topic; The teacher leads the students to rearrange the unit knowledge framework through mind mapping. ② Students think independently according to the knowledge framework arranged by the teacher, complete the drawing of mind map, discuss and analyze their own mind map with others, and modify the new findings. Then each student should put forward their own views and doubts. Teachers can inspect the class, find problems in time, and guide students to improve the construction of the mind map. ③ Each group shows the mind map, teachers and students work together to solve students' unsolved problems, and teachers give appropriate inspiration and comments.

The second lecture:

The teacher will give a detailed lecture on the knowledge structure sorted out by students in the previous lesson, review the content learned in the previous lesson, and focus on the practical application of the unary linear equation. It is mainly divided into three steps: ① The teacher explains typical mathematical word problems, and combs the key knowledge points in the questions by using mind map. Students independently complete the sorting of key knowledge, and then each student group shares the sorted knowledge points and improves the construction of mind map. Finally, the group representatives summarized the presentation results. ② The teacher selectively explains the key examples and answers the problems existing in the students' discussion. Students first learn independently and answer key questions. Then group members share their answers and discuss them. The teacher shows the correct answers. Finally, group discussion is conducted to sort out the mind map. ③ The teacher analyzes the details and guides the students to solve the word problems. Students try to solve the problem according to the teacher's steps and discuss the knowledge they do not understand in groups.

After Class Expansion

In order to test the effect of the application of mind mapping in the classroom teaching activities of junior high school mathematics, further consolidate the students' basic knowledge and sort out the knowledge framework. Teachers assign homework after class and think about the following questions:

Question 1: ① What are the characteristics of the equation? ② What are the similarities and differences between equations and equations?

Question 2: ① What is a unary linear equation? ② What are the characteristics of the unary linear equation?

Question 3: ① How to find the solution of the equation? ② What are the steps to solve a linear equation with one variable?

Question 4: ① How to solve practical problems with a linear equation of one variable? ② What are the steps?

Students review the knowledge of this lesson again according to the four questions, and require students to summarize and sort out the knowledge of these two classes, which is mainly divided into two parts: ① Sort out the notes according to the content of the textbook, and require students to master the basic content of the textbook, understand the definition, handle the exercises, strengthen and consolidate the knowledge they have learned, apply what they have learned, and master the problem solving methods. ② Complete the sorting of mind map, sort out the knowledge structure, grasp the core concepts, complete the mind map, and strengthen the understanding and absorption of the knowledge learned in the class. At the same time, students discuss and share their personal gains and thoughts after class to jointly improve the mind map of this lesson. After completion, each group will hand in the discussion record and mind map, and the teacher will give a summary and comment.

CONCLUSION

The mathematics teaching objectives clearly put forward that students should obtain the basic knowledge necessary for further study and future development and enhance their autonomous learning ability. The teaching and discussion are effectively combined in separate classes. This innovative teaching mode not only retains the essence of traditional teaching methods, but also cultivates students' subjective consciousness and cooperative spirit. The application of mind mapping in the split class can make up for the lack of emphasizing the knowledge backbone and ignoring the memory details in the teaching content of the split class. The students can participate more in the class, expand their thinking, establish a classroom with high enthusiasm and teaching efficiency, and improve the quality and efficiency of classroom teaching. The integration of these two teaching methods is suitable for mathematics courses and helps to complete the teaching objectives of review courses, which is worth further promotion. I hope that in the future, I can further study and improve the practical application of the integrated mind map in teaching.

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