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RESEARCH ON CLASSROOM TEACHING STRATEGIES FOR JUNIOR HIGH SCHOOL STUDENTS UNDER THE GUIDANCE OF CORE LITERACY

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Abstract

Student-oriented classroom is the fertile ground for students to develop core literacy of mathematics. The new curriculum standard emphasizes the teaching concept of "student-oriented". In the teaching activities, teachers should give full play to the subject status of students, return the classroom to students, so that students can better show themselves, so that they can master mathematical knowledge and develop the core literacy of mathematics subject naturally. However, at present, the classroom atmosphere of some middle school mathematics students' classroom reform pilot middle schools has not reached the ideal effect. There are some problems in the teaching classroom, such as ignoring students' main position, ignoring students' initiative in learning, and teachers' student-oriented concept is not thorough enough. This paper aims to develop students' core literacy. By studying the current situation of the mathematics students-based classroom in junior middle school and putting forward strategies to solve the problems, the teaching mode of the student-oriented classroom is improved.

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INTRODUCTION

Qian Xuesen puts forward a difficult question about the development of education in China -- "Why do our schools always fail to train outstanding talents (Huang Yajun, 2017) " The core quality is the essential character and key ability that students should have to meet the needs of lifelong development and social development. The ultimate goal of teaching is to cultivate talents needed by society. With the development of the society, our requirements for talents are constantly rising, and the traditional teaching mode urgently needs to be improved and updated. Student-oriented classroom is a classroom designed for students to learn by relying on the instinct of life. It highlights the cooperation, inquiry and autonomy of students' learning from multiple perspectives, and creates a student-

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oriented classroom teaching mode. The student-oriented education concept plays a positive role in promoting students' independent exploration, cooperation and communication, active thinking and careful listening. Through the implementation of the reform of student-based classroom teaching, it can not only change the current dreary classroom teaching environment of mathematics, but also enhance the teachers' ability to teach mathematics in the new situation (Yao Congli, 2012), and promote the student-based education concept better and faster. Therefore, it is imperative to study the mathematics student-oriented classroom teaching in junior middle school.

Mathematics in junior middle school is more abstract and logical, which makes it difficult for students to learn and teachers to teach. In order to improve teaching efficiency, teachers often assign pre-homework before class and adopt group cooperative learning during class to stimulate students' learning interest and improve learning efficiency. However, due to the lack of thinking and research in the design of mathematical pre-homework, Students' independent learning ability and expression and generalization ability are poor, students' main position in class presentation is not prominent, teachers' evaluation is not in place and other problems lead to low teaching efficiency and unsatisfactory effect for mathematics students in junior middle school.

In class, teachers talk with confidence, students copy notes, the class is dull, students' thinking has no opportunity to release, teachers say what students remember what, cramming and mechanical class does not fully demonstrate the main role of students, students are passive learning, without their own thinking. The construction of student-based classroom can stimulate students' interest in learning, knowledge is no longer taught by teachers but generated by themselves, students' learning from passive to active, from cramming teaching to inquiry learning. Therefore, it is particularly important to study the classroom teaching of junior middle school mathematics students. I hope this paper can provide some teaching inspiration and thinking for the classroom teaching of junior middle school mathematics students.

METHOD

The main research methods used in this paper are: teaching observation method, questionnaire survey method, interview method, literature method, analysis and induction method. First method is Teaching observation method. By participating in the open class organized by the school, the quality class competition and the accompanying class of the teachers in the same group, the external behavior of the teachers and students was observed, and the existing problems were found in combination with the actual situation of classroom teaching.

Second, Questionnaire survey method. Through the questionnaire survey, the attribution analysis of the survey results was carried out to find the status quo and existing problems of teachers and students in the classroom teaching of mathematics students in junior middle school.

Third, Interview method. With the help of the preset interview outline, through the conversation with teachers and students, the author has a deeper understanding of the current situation of teachers and students in the classroom teaching of mathematics students in junior middle school and the four aspects of student-oriented classroom teaching, clarifications of the attitude of teachers and students in the development of

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student-oriented classroom teaching and the feedback of relevant information in the teaching process.

Forth, The method of literature. Consult the teachers' work summary, learning experience, term paper, teaching research record and teaching reflection stored in the school, and consult academic journals, graduation papers and conference minutes related to student-oriented education theory through the Internet to further understand the research results related to this question.

Fifth, Analysis of induction. Through the overall analysis of the survey, interview and observation results, the present situation of teachers and students in the classroom teaching of junior high school mathematics students and the problems in the classroom teaching of junior high school mathematics students are summarized.

RESULTS AND DISCUSSION

Based on the author's teaching experience, on the basis of consulting various literatures, combined with many discussions with other teachers, and after repeated revisions, the author finally drew up a "Questionnaire survey of Teacher and Student based classroom teaching" and a "Questionnaire Survey of Student and Student Based classroom teaching". The contents of the questionnaire are designed in two directions: "Teachers' attitude and understanding of student-oriented education concept" and "students' understanding and understanding of student-oriented classroom teaching", respectively, from the aspects of teacher-student classroom teaching, student-student classroom teaching, pre-assignment design, group cooperation and communication organization, and presentation of class display.

The questions are designed from six perspectives: the establishment of student classroom summary and evaluation system. There are many similar questions between the teacher questionnaire and the student questionnaire. The purpose is to find the contradictions between the teacher's provision and the student's demand in the student-oriented classroom teaching in an all-round way by comparing the subjective attitudes of teachers and students towards the implementation of student-oriented classroom teaching and the answers from the four aspects of student-oriented classroom teaching. So as to find the existing problems in the current student-based classroom teaching.

The author collected the teaching plans, teaching reflections, listening records, course evaluation records, teaching and research activities records, learning experiences, end-of-term papers and other relevant materials of the mathematics teaching and research group from grades 7 to 9 in a middle school in Guilin during the 2018-2022 academic year.

In addition, there are usually talks with other teachers and students, as well as attending quality class competitions conducted by provincial, city, county and school teaching and research offices, and open classes organized by teaching and research groups.

Through the field investigation and questionnaire survey of the current situation of the classroom teaching of junior high school mathematics students, it is found that there are many problems in the classroom teaching of junior high school mathematics students. In general, it can be summarized as the following aspects.

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Teachers' student-oriented learning is not thorough enough, and traditional teaching concepts are deeply rooted. The focus of student-oriented classroom teaching reform is not on students but on teachers. Unless teachers step down from the "altar", students cannot return to the "classroom". Although many schools have carried out the reform of student-centered classroom teaching, most teachers will inevitably return to the knowledge-filling classroom teaching mode in which teachers speak and students listen, even in the student-centered classroom, due to the influence of traditional teaching concepts, the pressure of college entrance and social environment factors, so that the student-centered classroom will float on the surface without any substance. Students' classroom positioning is not clear, and students are in the position of passive learning. It is difficult to improve the ability of independent learning, which affects the development of students' core literacy.

The pre-assignment design is not scientific, and the study group construction is not reasonable. The teacher's design of the advance homework is not reasonable enough, resulting in serious exercises in the advance homework, too many questions in the advance homework, and students need to spend too much time to complete it. To a large extent, the pre-homework is still designed by teachers to complete the teaching task, which makes the teaching of junior middle school mathematics students still return to the traditional teaching mode. The teacher's homework design is not scientific enough, cannot meet the needs of students for learning mathematics, cannot play a leading role in students' independent learning. Group cooperation and communication is an important part of students' primary education, which is mainly for students to solve the doubts arising in the self-study process through group cooperation and communication after completing the preliminary homework by themselves. However, the composition of the group is unreasonable, and often the group is chosen by the students themselves, which leads to each group being a small informal group, and students have more communication with the classmates in the group. And less communication with other study groups, a group should be made up of students at different levels.

The classroom evaluation and summary system are not perfect. In the context of exam-oriented education, teachers do not really take students as the starting point and landing point of education and teaching. When students' performance in the classroom is not satisfactory, teachers will only blindly deny students, but lack of praise for students. The presentation of students' learning results can not only exercise students' language expression and organization ability, but also enable listeners to make up for their own shortcomings in learning. However, teachers often fail to provide proper guidance and evaluation in the presentation of students, and the language used in the evaluation is one-sided and not targeted.

Students don't understand the student-oriented classroom teaching concept. Students who are at a poor level of mathematics will neither take the initiative to participate in class teaching nor improve their classroom performance, so that the student-oriented classroom becomes the "student-oriented" for superior students. Students are used to "listening", students do not adapt to the independent learning of junior high school mathematics classroom, compared with the small capacity of primary school mathematics classroom, low thinking, junior high school mathematics classroom has a larger capacity, but also pay more attention to the improvement of thinking quality, students are used to step by step. In group cooperative learning, students are only busy with their own affairs,

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only their own expression, self-centered consciousness is strong, too concerned about the self, not good at listening.

Through the above research, under the guidance of the concept of student-oriented education, the author tries to solve the current problems in the following ways, and realize the effective construction of this classroom for junior high school mathematics students.

First, Reasonable design of pre-assignment. The student-oriented classroom requires the teachers to regard the students as the main body of mathematics learning in the teaching activities. In order to enable the students to achieve effective development and make full use of the time of a class, the scientific design of advance homework is essential. The advance homework here is very different from the traditional homework design. The setting of pre-homework should be determined according to the teaching content of each lesson and the situation of the students in the class, and should not limit the thinking of students. The pre-homework can be assigned in the book or written in the exercise book, but the pre-homework design should be designed around the teaching goal. The content of the advance homework is diversified and the evaluation is timely. In order to effectively build the classroom for junior high school students, I will start with the design of pre-homework, truly give students the opportunity to explore independently, and use pre-homework to drive students to do a good job in pre-class preparation, which is conducive to the progress of classroom students. Taking "raising common factors" as an example, combined with the teaching needs and the actual situation of students' math learning, I designed such pre-homework for them.

(1) The greatest common factor of the number 12, 8 is____; The greatest common factor of the numbers 6, 4, and 10 is_____.

(2) Fill in the blank: Write the following as the product of two factors by using the inverse operation of multiplying by the same power.

①$x^3=x\cdot(\ )$ ②$7x^2=7x\cdot(\ )$ ③$-21x=7x\cdot(\ )$ ④$8a^3b^2=ab\cdot(\ )$

⑤$12ab^3c=-3ab\cdot(\ )$ ⑥$15n^2m^5=3mn^2\cdot(\ )$

(3) Calculate: $99\times98+99\times2$

Question: What method do you use to calculate? Do the terms of this formula have the same factors?

(4) Can you try factorizing a2+a?

Figure 1. The pre-assignment design of "raising common factor"

Students' complete homework before class, check their answers with each other first in class, communicate and discuss in groups where they do not understand, and organize language to prepare for the speech on the stage. Through the knowledge review of the greatest common factor and other knowledge, it lays a foundation for students to determine the coefficient of common factors, and foreshadows the method of raising common factors in this lesson. In this process, students independently review and reorganize the knowledge, and find new problems, lay a solid foundation for the

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realization of basic, is conducive to the development of students' computing ability and independent learning ability.

Second, divide groups reasonably to realize independent cooperative learning. In the process of building this class for mathematics students in junior middle school, group cooperative discussion and learning is the most intense link of thinking collision, and also the key link for students to solve difficult problems in pre-homework and master valuable mathematical knowledge. If students can realize cooperative learning between groups in the classroom, they can not only obtain valuable mathematical problems but also develop students' ability of cooperation and exploration. Therefore, in the process of constructing student-based classroom, students are divided into different groups, and each group member should contain students of different levels. Then, task-driven method is adopted to assign mathematical exploration tasks to the groups, and students are guided to analyze and solve tasks in cooperative exploration, thus deepening their understanding of mathematical knowledge in the process.

In group cooperative learning, teachers should give full play to the role of group cooperative learning, and give every student the opportunity to communicate and show. At the same time, teachers should step off the platform, walk into the group to listen, and give more encouragement to the students who are not good at expressing their ideas. For example, in the lesson of factorization, when observing the characteristics of polynomials, the teacher guides the students to observe and analyze in the form of group cooperation and summarizes the concept of common factors in group cooperative learning. The teacher guides the students to communicate and explore: how the common factors in polynomials are determined and asks the group to show the determination method of common factors. In the whole process of group cooperation, students' ability of cooperation and exploration can be exercised to varying degrees.

Third, Create a student-oriented classroom through effective evaluation. Under the new curriculum reform, the teaching evaluation of mathematics classroom is essential. We should not only pay attention to what math knowledge students learn in class, but also what emotional experience and ability students get in math class. Therefore, under the background of core literacy, the teaching evaluation of mathematics class should be all-round and comprehensive (Feng Li, 2007). When evaluating students, teachers should observe students' performance in class, as well as some performance in after-class exercises and so on. Only by making our evaluation concrete can we more effectively reflect the differences of students and ensure the effectiveness of evaluation. At the same time, the evaluation of students in the classroom should be more focused on reflecting the students' leadership in the evaluation. In addition to evaluating students, teachers can also encourage students to evaluate each other. Through the evaluation of each other, students can better realize their own shortcomings and gain confidence in learning mathematics. Therefore, under the core quality concept to build the student-based mathematics classroom cannot be separated from the diversified evaluation.

Forth, Carry out life-oriented practical activities, so that junior high school mathematics toward students. In the teaching process of junior middle school mathematics classroom under the concept of student-oriented education, teachers should closely combine the teaching objectives of junior middle school mathematics curriculum and the actual situation of students to carry out practical activities in life, so that students can reasonably

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combine mathematical knowledge points with real life. To encourage students to apply the mathematics knowledge learned in the classroom to the real life, fully mobilize the desire of middle school students to learn mathematics at the beginning, strengthen students' confidence in learning, and make junior middle school mathematics classroom become student-oriented.

For example, in the section of "mean median mode", the teacher takes the students' usual test results as an example to explain that the average score is the average score by adding up all the scores of the whole class and dividing by the total number of people. Ask students how to know their grades in the class level, students easy to answer the average, but the average is easy to be affected by high or too low data, so introduce the concept of median, in the process to develop students' sense of application and innovation. By carrying out the life-oriented math practice activities, making the middle school math classroom student-oriented, not only can enhance the middle school students' math practice ability, but also can effectively improve the middle school students' math core accomplishment.

Fifth, use information technology to create intuitive teaching interest and stimulate students' interest. In the background of the rapid development of information technology, the integration of teaching and information technology, the effective use of multimedia teaching equipment intuitiveness and convenience to intuitively display the teaching content, the abstract mathematical knowledge more intuitive and visualized, cultivate students' interest in learning mathematics while developing students' geometric intuitive mathematical core literacy.

For example, when learning the section of "Axis Symmetry", teachers can guide students to master the concept of axis symmetry, accurately understand the axis of symmetry, corresponding points and other related knowledge, and then make full use of dynamic mathematical software to fold the graph along the axis of symmetry so that the graph overlaps, telling students that this is the axisymmetric graph, so that students can learn the related knowledge points of axis symmetry more intuitively. At the same time, you can also show the students the parallelogram, square, circle and other graphics folding, guide the students to distinguish what is axisymmetric graphics. In this process, teachers can also let students' hands-on operation, let students personally experience the process of axis symmetry formation, more in-depth understanding of knowledge points, and truly achieve the goal of junior high school teaching toward students.

In the class of mathematics students in junior middle school, students explain, ask questions and answer most of the time, and only when students' explanation is not in place will teachers supplement and summarize. Teachers act as guides in this kind of class, and teachers take the initiative to learn under the guidance of teachers. In fact, this cooperative method is a process of determining teaching by learning and promoting learning by teaching, and students can not only learn by themselves, also can effectively guide other students to learn, from which the joy of success, but also greatly stimulate the interest in learning, the formation of a good learning atmosphere in the class.

CONCLUSION

In the study of junior high school mathematics students in this classroom teaching mode, the author also gained a lot, now the conclusions of this study are summarized as follows.

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The teaching effect of mathematics class in junior middle school is very significant, which comprehensively improves students' ability of independent learning and language organization and expression, and promotes the development of students' core qualities. The student-centered classroom advocates that students acquire knowledge through independent exploration, which can help students better understand the construction of mathematical knowledge. The teaching of mathematics in junior middle school plays an active role in cultivating students' learning initiative. The student-based classroom teaching pays attention to the principal position of students. This kind of classroom makes full use of this precious resource of students, and cultivates students' communication ability and rational thinking through group cooperative learning, which can quickly improve students' personal quality. The student-based education of junior middle school mathematics has improved students' personality and quality. The mathematics student-oriented classroom in junior middle school is conducive to improving teachers' teaching effect. Teachers refer to the requirements of the curriculum standards before starting the class, and design reasonable teaching content and classroom activities to stimulate students' interest in learning according to different students' learning conditions. Teachers' participation in the student-based classroom itself is faced with many challenges, and the classroom has great uncertainty and flexibility. If teachers can dig deeply and promote the reform of the curriculum, then under the diversified teaching practice, teachers' self-learning ability will have breakthrough progress. As a brand new educational theoretical system, student-based education has rich connotations. Due to the limitation of the author's own knowledge level, it is impossible to carry out rigorous and comprehensive research, and the theory and practical experience used in this paper are very limited. In the research, it is found that due to the pressure of high school entrance examination, many grade three teachers still choose the traditional classroom teaching mode. How to apply the student-based classroom teaching mode in senior grades is still worthy of further discussion. It is also hoped that more front-line teachers can improve the classroom teaching mode of mathematics students in junior middle school according to the actual teaching experience, improve the learning efficiency of students, improve the teaching quality, and help develop the core literacy of students in mathematics.

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