

# Some Matters Needing Attention in Mathematics Teacher's Teaching Plan Design

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## Abstract:

Teaching plan is a practical teaching document for teachers to carry out teaching activities smoothly and effectively. With the development of the Times, teaching plans have also undergone great reforms. This paper discusses some key points in the current teaching plan design, including inheriting tradition and integrating innovation, but the most fundamental is always to improve students' learning ability in the teaching process.

*Keywords* —Teaching plan, Mathematics,

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## I. INTRODUCTION

Teaching plan design is an indispensable part of teacher education system. For a qualified mathematics teacher, we should take comprehensive consideration from the determination of teaching objectives, the implementation of specific teaching content, the selection of teaching methods, the progress of class, the grasp of classroom effect and so on. In the overall course objectives, the content is decomposed into unit objectives and class objectives, the content is modular, and the teaching essence of "teacher leading, student leading" is internalized into the teaching practice of each class. While emphasizing the leading role of teachers, students gradually become the main body of class. In the process of transformation, the lesson preparation of teachers becomes very important, integrating teaching objectives, teaching methods and the assumption of classroom organization into the teaching design. Therefore, teachers must make

full preparation before class to ensure the smooth proceeding of class content before each class.

## II. PRACTICAL EXPERIENCE

With the support of teacher education exchange activities in my employment school, the author has gained more teaching feelings by going deep into the middle school classroom practice and participating in the teachers' lesson preparation and grinding. The brief description is as follows:

(1) Teaching is the central work of all schools. The pace of teaching by middle school teachers is very regular. For each grade and each class, a new lesson from the beginning to the final presentation of students in the classroom, about go through lesson preparation three times, and then plus 2-3 times of review. Often the first lesson preparation begins from the beginning of the holiday, teachers have been grouped to study the teaching materials and preliminary design courseware. Two to three weeks before the class, the second preparation is

begin. Teachers will refine the teaching plan and show the teaching plan in the research group discussion. Finally, the comprehensive group will determine the final electronic teaching plan one week before the class. Wait for the new lesson to teach, the subsequent after-class exercise, the weekly test, chapter review and mid-term (or final) review should further consolidate the corresponding knowledge points.

(2) In general, a new lesson lasts about 45 minutes. The general steps are as follows: Import problem (how to import and supplemented by previous knowledge), new knowledge to explain (many ways to draw), classroom practice (emphasis on basic questions after class), progressive knowledge difficulties to consolidate, the class summary (in PPT form), you can give classroom tests (knowledge expansion), finally the classroom reflection.

(3) A new knowledge point, successively with pre-class self-study lesson case, classroom exercise case, after-class review case, weekly test, chapter pilot case, chapter review case and other learning links to consolidate the learning content, to achieve progressive knowledge, against the purpose of Ebbinghaus forgetting rules. Teachers design exercises scientifically to improve the efficiency of classroom teaching and improve the effect of teaching results.

(4) The combination of collective and individual lesson preparation. Collective lesson preparation is conducive to giving play to collective wisdom, realizing resource sharing, facilitating the adjustment of teaching progress and unification of teaching content among multiple classes. This is very important for a teaching team with new teachers. Personal lesson preparation is a further in-depth study based on collective lesson preparation, aiming at the characteristics of the students in the class and their own understanding of the textbook and teaching content. After participating in the collective lesson preparation of teaching contents

for many times, I listened to the teaching of six teachers in different classes and found that each teacher added personalized modification in teaching. Some teachers focus on classroom exercises, while others focus on group discussions to guide students to solve problems.

### **III. KEY ELEMENT OF A GOOD LESSON PLAN**

#### **(1) Teaching focus and difficulty**

Teaching focuses on the derivation and application of important definitions, theorems and formulas. Teaching difficulty is mainly the expansion and application of key content. Generally speaking, the content of many theorems and definitions in textbooks is abstract and may contain a mixture of various knowledge. The analysis of the key and difficult points requires the teacher to make a comprehensive analysis based on the overall curriculum objectives and the characteristics of the textbook itself.

#### **(2) Necessary teaching process**

##### **a) Context import**

Classroom content is generally introduced by appropriate context. Successful context imported can stimulate students' interest in learning and trigger their thinking, and also reflect teachers' teaching ability. Mathematics comes from life, mathematics teaching activities will take certain materials as the carrier, so choosing the appropriate teaching situation has become an important link of teaching activities. If the new knowledge and content are directly started at the beginning of a class, the students may have had half a class before they got into the state, so that the effect of students' acceptance will be greatly reduced. For some difficult content, working on the transition between new content and old knowledge becomes a very context-leading phase. At this stage, students can unconsciously turn to the exploration and learning of the new content by reviewing the old content, so as to change the process from familiar knowledge to knowledge seeking, which will not make

students feel awkward about the new knowledge and can mobilize the initiative of students.

b) Teaching activities

Classroom questioning is one of the most effective means to organize classroom teaching, and also an important part of teaching activities. It can not only be used to organize teaching, but also timely feedback students' understanding of the content, which is convenient for teachers to carry out the next classroom teaching. But asking questions is not a very random thing, the questions should play an important role in the cohesion of the content, and the questions must be based on students' cognitive ability, so that students can feel the feeling of "If I jump, then I can grasp", so as to effectively guide students to think and activate their thinking. In the process of designing problems, teachers should pay attention to the problems that they must be open and discussible, which can be analysed from two aspects of positive and negative, so as to teach students correct knowledge and correct students' wrong thinking mode. Some big topics can be discussed in groups. Finally, the results of group discussion can be compared and explored.

c) Selection of key examples

Interspersed examples can significantly improve students' thinking and cognitive ability, and the process of solving problems is to consolidate cognition. Teachers should choose typical topics that focus on basic understanding and application in the initial learning process, which can inspire students of different levels to think about the same problem from different perspectives. In the process of explanation, it can meet the knowledge needs of different students, and also inspire their thinking ability. In the review stage, you can choose some strong skills, high complexity of the topic to help students to advance thinking, exercise the quality of students to tackle difficulties.

d) Class summary

Class summary is the last important step of a

class. A simple and clear class summary can help the student better review the knowledge learned in this class and master specific knowledge and skills. At the same time, the summary can also make up for the content of this class. Proper summary, can give full play to the global class, is also an important means to improve classroom efficiency. There is a tendency to leave an open topic at the end of the section, either related to what follows or to a practical problem, rather than just a traditional topic.

#### IV. SEVERAL INNOVATIONS IN TEACHING PLAN DESIGN

(1) Multimedia teaching

Multimedia teaching is a very popular teaching mode in recent years. It not only integrates the effectiveness of traditional mathematics teaching, but also adds the richness brought by multimedia. The combination of the two complement each other, so as to participate in the subject teaching, so as to optimize teaching. Multimedia can make the original monotonous teaching activities more interesting and intuitive, and can realize some contents that cannot be displayed in the classroom, which is very good for the construction of students' three-dimensional sense.

(2) Blackboard design

Blackboard writing is the most common way in traditional teaching mode, but with the development of multimedia technology, blackboard writing tends to weaken. Blackboard writing plays a very important role in teaching. The title of a lesson, the main definition and derivation, the steps of solving key examples, important conclusions and points to note are all indispensable contents of blackboard writing. When writing on the blackboard in class, students should write neatly and standardized, use correct mathematical language with annotations, and have a reasonable layout on the blackboard.

(3) Reflection after class

When the class is over, it doesn't mean the class is over for the teacher. Teachers should review the whole teaching process after class, think deeply about each link, and explain whether there is any omission in their teaching behaviours, students' reaction in class, and the explanation of key and difficult points, as well as what aspects they need to supplement. Reflection is good for teachers' self-improvement in the later teaching.

#### (4) Embedding of problem chain

Problem-chain teaching refers to a new teaching mode in which the teacher sets the teaching content as the link with questions, the development of knowledge formation, the cultivation of students' divergent thinking ability as the main line, and the interaction between teachers and students in class as the basic content in daily classroom learning according to the overall teaching objectives. It is very important to set up problems in the implementation of problem chain teaching, and the chain of problems is the most important. In class, questions should be advanced from simple to profound, and questions should be set for students who understand the progress of knowledge according to different learning status in the class, so that students can understand knowledge more easily through questions, and attract students through questions, so as to guide and educate students. To form logical "chain", through some interest problems as the beginning, stimulate students interest in the search for knowledge, and through the open questions and the classroom to cultivate students innovative thinking, let the problem interlocking, gradually thorough, pay attention to the problem before and after the formation of strict logical chain, let the student through the inertia of the logical thinking learning knowledge. Create a good classroom atmosphere, teachers and students through the problem of the corresponding interaction, teachers gradually guide, students actively participate in, so that students focus more. When setting up the problem chain, it

must not deviate from the textbook content and teaching syllabus under the condition of appropriate expansion.

## V. CONCLUSION

A good teaching plan should meet the requirements of reasonable positioning of teaching objectives, reasonable expression, clear and smooth teaching process, and scientific and effective teaching and learning methods. The teaching plan should reflect the new teaching concept and correctly deal with a balance between emotion, attitude, value, ability and knowledge. Set up the classroom teaching efficiency view of "reaching the standard in every class". Teaching plan design can improve the enthusiasm of teachers in research and teaching, improve the level of education and teaching and the quality of education and teaching.

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