

An Investigation and Research on the Current Situation of the Teaching Skills of Young Mathematics Teachers

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Abstract – The development of education is the top priority of the national development. Teachers play an important role in education, and the growth of young teachers is the key to the construction of teaching staff. Although young teachers have higher enthusiasm and professional knowledge system, they still have some deficiencies in teaching. There are still some shortcomings in regard to their teaching skills, including language skill, guidance skill, explanation skill, classroom organization skill, demonstration skill, blackboard writing skill, questioning skill, feedback skill, improvisation skill and class closing skill. We can use the following strategies to change these problems: young teachers should master the basic concept of teaching skills in school; they should strengthen the understanding and application of teaching skills; they should enhance the reasonable use of teaching skills in the course of classroom teaching; the school should timely know the deficiencies of young mathematics teachers in terms of their teaching skills and it can establish the systems such as the master-pretence mode, the manner of consultation among colleagues, etc.; and we should reinforce the implementation of training programs for young teachers.

Keywords – Young Teachers, Teaching Skills, Middle School Mathematics.

I. INTRODUCTION

Today in the 21st century, the level of education development in a country has become an important theoretical basis for assessing whether a country is strong or not. Therefore, the development of education has become the top priority of a country's development, and teachers who play an important role in education have become an important driving force for the development of society. Young teachers have become pioneers in the ranks of teachers. However, young teachers who have just entered the teaching line for the first time cannot fully adapt to and be competent for the teaching work of education. They will encounter some problems that they have never encountered in the process of learning in school and cannot solve by themselves. This requires teachers to have excellent theoretical basic knowledge and excellent teaching quality. Among them, teaching skills play an important role in the development of young teachers, which directly affects the enthusiasm of young teachers for teaching [1]. Therefore, by observing some young math teachers in the middle school of yanji city, this paper starts with the problems in classroom performance, student feedback and teachers' self-discovery of teaching skills, analyzes the statistical data and gives targeted solutions. It is intended to give young teachers some constructive and corresponding opinions and Suggestions, to help them smoothly through

the confusion when first induction period, develop their own advantages, improve their own shortcomings, to better play to their own light and heat in a work. And then, it is possible to organize a team of outstanding young teachers with high academic qualifications, high qualifications and high skills for the school.

II. SURVEY AND ANALYSIS ON THE TEACHING SKILLS OF YOUNG MIDDLE SCHOOL MATHEMATICS TEACHERS

In this paper, a total of 70 young mathematics teachers in yanji middle school were studied, and a total of 70 copies of the questionnaire on basic skills of young mathematics teachers were distributed to them. 70 Copies were recovered, among which 68 copies were valid, with an effective rate of 97.1% and a recovery rate of 100%. The questionnaire was conducted from 10 aspects and the data obtained are statistically analyzed.

A. Language Skills

Teaching language is an important teaching method and teaching tool for teachers in education teaching work. If a teacher does not have fluent expressive ability, then other teaching methods cannot be carried on. Teaching language is one of the essential qualities for teachers and a guarantee for teaching success. A good teacher should be vivid and specific in language, full of interest, easy to understand. Language skill is the first of the ten special skills of teachers [2]. The question asked in this question is “How do you think your teaching language?” 88.2% of the teachers who got the option think that their language skills are clear and accurate, and 11.8% of teachers think their language skills are clear, and no teacher chooses the language to be fuzzy and inaccurate.

B. The Skill of Introductory Procedures

The skill of introductory procedures is the opening remark of a class, which is an important part of the teacher to bring students from non-learning state to learning state. If the teacher can fully mobilize the enthusiasm of the students at the beginning, it will lay a solid foundation for the success of this class. It requires teachers to reasonably create situations, clarify teaching purposes, and master students' interest in learning [3]. In this survey, young teachers were asked about their understanding of the import, that is, "what do you think the purpose of the import is?" "What is the usual import time?" "And" what is the method of adoption?" Get the following results: 30.9 % of young teachers believe that the introduction can capture the attention of students in a short period of time, 44.1% of

young teachers think that the introduction can contact the new class, but only 8.8% of the teachers think that the introduction is to make the students clear the learning task, by the vast number of teachers' ideas about the introduction still stays at the level of the initial link with the new lesson. In the new curriculum reform, the requirement for teachers' ability is explicitly mentioned that teachers need to have clear teaching objectives, so as to master the direction for students and make their learning objectives clear. The reason for this phenomenon is that young teachers lack the basic knowledge of educational theory, and have not dig deep into the theoretical basis of education and the requirements for teachers in the new curriculum reform. They were not clear about how to apply it to practical teaching. As for the introduction time, 58.8% of the young teachers choose 1-2 minutes, 24% of the young teachers choose to import 3-5 minutes, and only 1.5% of the teachers choose about 5 minutes. Should pay attention to the scientific grasp of the lead-in time. In general, a 45 - minute course introduction time should be controlled at about 5 minutes is most appropriate. If the time is too short, the expected teaching effect can not be achieved, so that the introduction is pale. If the import time is too long, it will lead to a presumptuous guest usurps the host's role, affecting the progress of the classroom. Throughout the investigation, we found that the vast majority of teachers spent too little time on the import process, they didn't research into the significance of the introduction for the whole class. Finally, for the import method, 77.9% of young teachers chose "introduction of old knowledge". 4.4% of young teachers chose "direct import" or "suspended import" and 13.2% of teachers chose to use "story import". The data shows that the teacher's method of importing the classroom cannot only stay at the level of old knowledge. Teachers should learn more ways of introductory procedures, so as to better realize the diversity of teachers' work skills.

C. Explaining Skills

For teachers, explaining skills is also an indispensable part of the classroom math class. Explaining skills usually means that teachers use a reasonable explanation to complete the teaching tasks in the classroom teaching activities. Generally speaking, they mainly explain some concepts, definitions, and rules in mathematics. It is a teaching method that imparts knowledge and inspires students' thinking, so as a qualified math teacher, you should constantly improve your teaching ability [4]. The survey results are as follows: 69.1% of the teachers chose to use the introduction teaching, 23.5% of the young teachers chose to use the combination of the blackboard and multimedia, and only 1.5% of the teachers chose to expand the teaching method by combining students' questions in the explanation. For the exercise that appears in the content that must learn in teaching material, there is 69.1% of the teachers involved in the basic answer choice. They will choose the best choices in the textbooks. They will change the after-school exercises in combination with the students in this class. 27.9% of the teachers will explain all the exercises, they think that the exercises after class are the essence of the exercises, so we must strictly explain all

aspects of the after-school exercises. The remaining 3% of the teachers did not explained. They think that after-school exercises are too similar to the examples, so there is no need to repeat the practice. Students should be exposed to some new types of questions to learn more problem-solving ideas and method. About the thinking question, 44.1 percent of teachers are seldom given answers to the questions. And they only use their spare time to answer the questions after class on the basis of completing the basic teaching tasks. 39.7% of the teachers often explains these questions. 13.2% percent of the young teachers gave a comprehensive explanation of the after-school thinking questions. They think that the thinking questions are the sublimation of each knowledge point, which can help students develop their thinking and learning. Only 3% of teachers did not deal with after-school thinking questions. They think that thinking questions are not suitable for all students in the class, nor for exams, so they will not spend too much on after-school thinking. The data indicates that teachers should better stimulate students' enthusiasm for learning during the teaching process and guide them to conduct independent research and cooperation. It is necessary to move from "exam-oriented education" to "quality-oriented education", from "teacher master control" to "teacher-led, student subject".

D. Classroom Organization Skills

The success of the lesson depends not only on the teacher's solid basic skills in teaching but also on the professional knowledge ability behind him. There is also an important factor in the whole classroom - the students, so the positive cooperation of the students also paints a wonderful lesson. In this way, it is especially important for excellent teachers to have solid classroom organization skills. The results of the survey are shown in Table 1.

Table 1. Statistics of Teachers' Classroom Organizational Skills

		Number of people	Percentage
What do you do when you encounter an individual's lack of concentration?	Give hints and reminders	36	52.9%
	Remind when performance is serious	21	30.9%
	Do not remind if it does not affect others	8	11.8%
	Disregard	3	4.4%
		Number of people	Percentage
How do you handle individual students who make mistakes in class	Corporal punishment	0	0
	Oral criticism	45	66.2%
	Persuasion Education	17	25%
	Let the students make them know the mistake	6	8.8%
	Let other students corporal punishment	0	0
	Leave no matter	0	0

Through the data, some young teachers are lacking in the organizational skills of the classroom, as well as the ideological misunderstanding. The study shows that the period from 7 to 13 years of age belongs to the primary

school section. The concentration period of the students in this section is 20-30 minutes. Between the ages of 13 and 16, students were able to concentrate for 30 to 40 minutes in middle school, while high school students were able to concentrate for more than 45 minutes. Therefore, teachers should grasp the characteristics of students and arrange teaching tasks reasonably so that students can receive more educational knowledge as much as possible during the period of concentration. Moreover, teachers should also grasp students' interest in learning and prevent students from distracting them prematurely because of the boring classroom. When individual students make mistakes in the classroom, we find that none of them will choose corporal punishment, or let other students to punish them, and none of them will choose *laissez-faire*. This fully reflects the respect of young teachers for their human rights and personality. In the face of students' faults, teachers should adhere to a tolerant attitude and give students full respect and understanding. However, students should not be allowed to indulge. The purpose of education is to let the students know their mistakes, and to create a changed belief and determination from the heart. Under certain special circumstances, teachers should also give students appropriate punishment, but the premise of punishment is not to damage students' physical and mental health.

E. Demonstration Skills

In the classroom teaching process, mathematics teachers often encounter some abstract or difficult knowledge points or exercises that are difficult to describe in words. Teachers need to add a demonstration process in the process of explanation, using language and teaching tools to more vividly and concretely show the charm of mathematics for students. Therefore, teachers are required to be able to use the skills of demonstration as a teaching aid in the process of education and teaching. It can develop the students' ability of abstract thinking [5]. The results of the survey are shown in Table 2.

Table 2. Survey on Demonstration Skills of Young Teachers.

		Number of people	Percentage
Do you use multimedia to teach	Often used	5	7.4%
	Occasionally	20	29.4%
	Rarely used	41	60.3%
	Never used	2	2.9%
		Number of people	Percentage
When do you use multimedia to teach	General classroom teaching	4	5.9%
	Large public class	52	76.5%
	When language teaching is difficult to achieve teaching purposes	10	14.7%
	When students lack learning interest	2	2.9%

It can be seen from the above table that 60.3% teachers seldom conducted multimedia teaching. In the survey, it is learned that teachers think that using multimedia courseware will waste a lot of time to collect and make courseware, which is pompous. It is only in the large-scale open class that multimedia is used to assist teaching.

According to the statistics, only 5.9% of teachers chose to use multimedia in the daily teaching activities, which is far from the basic level required by the state.

F. Blackboard Writing Skills

Writing beautifully and succinctly on the blackboard can help students to understand the key points and difficulties in this lesson while enjoying the beauty. A good blackboard writing can make the teacher's curriculum more systematic and fluent [6]. The results of the survey are shown in Table 3.

Table 3. Survey on Blackboard Writing Skills.

		Number of people	Percentage
Are you aware of the design requirements of the blackboard	Clear	60	88.2%
	Not clear	0	0
	Unclear	8	11.8%
		Number of people	Percentage
What is the usual way of writing on the board	Outline	52	76.5%
	Keyword	7	10.3%
	Tabular format	6	8.8%
	Graphic	3	4.4%

According to the survey, 88.2% of the teachers clearly know how to design the blackboard. They think that the blackboard is an indispensable part of education and teaching. 11.8% of the teachers are not very clear about the design of the blackboard. They believe that in the era of multimedia information, multimedia can be used instead of blackboard. This saves time and makes it clearer. No teacher knows nothing about the design of the blackboard, and 76.5% of the teachers chose to use the outline form of the board, which occupies the majority of the board design situation. Therefore, it shows that young teachers have some insights on board design, but the form is too single.

G. Questioning Skills

A lively mathematics class not only needs the teacher's wonderful explanation but also needs the student's positive cooperation. The teacher-student interaction is the difference between classroom education and other education. The most basic teacher-student interaction is reflected in the teacher's question [7]. The results of the survey are shown in Table 4.

Table 4. Survey on Questioning Skills.

		Number of people	Percentage
How do you ask questions in class	After the question, the students answer together	23	33.8%
	Choose classmates who raised their hands after asking questions	32	47.1%
	Choose classmates who do not raise their hands after asking questions	4	5.9%
	After the question, the students compete for the right to answer	7	10.3%
	First assign a student and ask questions to let other students answer	2	2.9%
			Number of people
Which type of question do you prefer in class	Mainly memory	37	54.4%
	Mainly understood	19	27.9%
	Based on evaluation	3	4.4%
	Give priority to the way of thinking	5	7.4%
	Other	4	5.9%

The data shows that 47.1% of the teachers chose the classmates who raise their hands to answer the questions, and 33.8% of the teachers chose to let all the students answer the questions. These two cases account for 80.9% of classroom questioning circumstance. For the process of asking questions, 54.4% of teachers will choose to focus on memory, 27.9% of teachers chose to focus on understanding, and only 4.4% of teachers chose to focus on evaluation. The teachers' questioning methods are all focused on the whole. They do not consider individualized teaching. This will result in individual students becoming less helpless because they are not able to integrate into the classroom. Serious students will be bored with learning or even give up learning. In addition, teachers still grasp the connotation of questions in the state of mainly focusing on memory and supplemented by understanding, and have not studied the status and function of questions on the whole class.

H. Feedback Skills

In the classroom, not only teachers need to be the leader, but students also need to be the subject. In the teaching process, teachers should not only carefully study their own professional knowledge, but also understand their students' needs and feedback in the process of receiving knowledge. Teachers are required to master certain feedback skills. The results are as follows: 29.4% of teachers chose to observe students' facial expressions to get their feedback, 25% chose to check questions in class, 25% chose to practice and test students' learning in class, and 7.4% choose other ways to receive students' feedback. From the data, we can find that teachers use feedback in a single way, and most of them only judge students by their facial expressions, which is too one-sided. Teachers should use various methods to obtain students' feedback information, such as observing colors, checking homework, asking questions in class, and communicating with teachers and students.

I. Variety Skills

In the classroom teaching, teachers should give students some refreshing stimulation from their own language, movements, teaching content, teaching methods and other aspects. Such stimulation can make students' attention stabilize in teaching activities and improve learning efficiency [8]. The results of the survey are shown in Table 5.

Table 5. Survey on the Changing Skills of Young Teachers.

		Number of people	Percentage
Which method do you choose to attract students' attention during teaching	Display teaching aid	1	1.5%
	Use multimedia	7	10.3%
	Change language, speed of speech	25	36.8%
	Increase facial expression	5	7.4%
	Move the body in the classroom	30	44%

It can be seen from the data that 44% of teachers would choose to attract students' attention by moving their body position, changing their unintentional attention to intentional attention. 36.8 percent of teachers would change the speed and intonation of their lectures to regulate the

atmosphere of the classroom, while 10.3 percent chose to use multimedia to attract students' attention. We found that the overwhelming majority of teachers would choose the more traditional way to attract students' attention. The form is single, and the effect is not obvious. In the classroom teaching, not only the above methods can attract students' attention. Teachers can use a variety of teaching methods, such as the use of intuitive teaching methods, classroom interactive discussion methods, practical operation methods. Let students actively participate in the teaching of the subject.

J. Ending Skills

A complete math class should not only have a wonderful beginning, but also have a perfect end. It requires teachers to have good ending skills, systematically summarize and summarize the content of this lesson. Let students re-process the knowledge they have learned and sublimate them. The results of the survey are shown in Table 6.

Table 6. Survey of the Ending Skills of Young Teachers.

		Number of people	Percentage
What methods do you often use to consolidate knowledge points	Outlined blackboard	52	76.5%
	Icon board	7	10.3%
	Check the students at random and ask them to answer verbally	2	2.9%
	Mixing the points with the exercises	7	10.3%
	If the content is not very important, there is no need to review	0	0%

We found that 76.5% of the teachers chose the outline board as the final summary. Next, 10.3% of the teachers chose to use the icon-based blackboard and 10.3% of the teachers mixed the review points when explaining the exercises. We found that the end situation was single and old-fashioned.

III. STRATEGIES FOR IMPROVING THE TEACHING SKILLS OF YOUNG MATHEMATICS TEACHERS

A. Communicate Closely with the University to Master Basic Teaching Skills during School

Compulsory education phase of the schools should establish close contact with universities. Young teachers should participate in the first-line education activities on the eve of graduation. The colleges and compulsory education schools will reach an internship base to communicate with each other. Young preparatory teachers will learn and seek in the field. Self-sufficiency is supplemented and strengthened before entering the job, and middle school students can participate in some exchange reporting activities in universities. Students can not only yearn for university life, but also clarify their own learning goals, so as to achieve the win-win purpose. In this way, on the one hand, colleges and universities can fully understand what kind of talents primary schools need, so that young teachers can improve

their learning at the learning stage before entry and better adapt to the work of front-line teaching. On the other hand, the middle school can also understand what kind of talents are needed by colleges and society. This will benefit the development of students so that they can better adapt to society in the future.

B. Understanding and Application of Teaching Skills in Classroom Teaching

When young teachers just find orientation, their understanding of the teaching skill also just stay on the theory and don't combine with practical teaching. Young teachers are not able to combine all kinds of skills, and the teaching skills needed for a certain class are vague. Such as the introduction of skills is not only a summary of the last lesson and the introduction of this lesson, but also can turn the unintentional attention of the students into intentional attention, so that students can quickly enter the classroom, and can arouse the enthusiasm of students' learning. In addition, teachers should also pay attention to the content of this section to select different methods of import, such as direct import, review import, story import and suspect import, etc. Teachers should also pay attention to the time and speed of the import and the students' feedback. This requires a reasonable combination of enhanced feedback skills and language skills on the premise of importing skills. Therefore, young teachers must learn to combine different teaching skills in the process of first-line teaching and adjust the use of teaching skills in different environments and in different students.

C. The Teacher and Student Teaching System can be Established in School, and the Colleague Exchange System can be Established

The school can provide a tutor for the newly employed young mathematics teachers to help them through the growth period. Young teachers can follow the old teachers to observe and learn, and can ask the old teachers to help themselves through the confusion period. In addition, the school can provide teachers with opportunities for professional communication and exchange. In this exchange, teachers will check and correct deficiencies, learn from each other and encourage each other. Attend open classes organized by schools and school districts. Find your own strengths and weaknesses, and improve them in a targeted manner.

D. Strengthen the Implementation of the Training Plan for Young Teachers

To strengthen the training of young teachers, we should not only reflect the pre-employment, but also pay close attention to the growth of young teachers. Because from young teachers to finished teachers, they have to go through a long experience. We can train young teachers in the form of groups, and shorten the confused and adaptive period of young teachers with the help of collective strength. In the activity, teachers can better find their own position and find their own efforts and goals, so as to develop better. In addition, school-based courses can be implemented so that young teachers can participate in the formulation of school-based courses. Let them know how to make students better understand and master the knowledge they need to learn in the teaching process, and how to make better use of

teaching skills so that different students can be promoted and developed. The school can establish the corresponding growth record bag for young teachers of mathematics, and record the puzzles they encounter in different working periods as well as the wonderful blooming. It can help teachers to carry out self-cognition, make up for deficiencies and advantages clearly, and let young teachers grow rapidly.

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