

## **Strengthening the Professional Skills Training of Normal Students Majoring in Mathematics**

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**Abstract:** It is the basic requirement of teachers' professional development to enhance the professional ability of normal students. It is the practical need to improve the employment competitiveness of normal students, and it is also the need to do better and stronger teacher education. It is an effective way to enhance the professional ability of normal students to strengthen the construction of vocational skills courses for normal students majoring in mathematics, enrich the practical content, train normal students in professional identity and ethics education, Putonghua and teachers' oral English, writing skills, teaching skills and class teacher's working skills, and build a three-dimensional, whole process and consistent skill training system.

Comrade Xi Jinping pointed out that "we should strengthen the construction of teacher education system, increase the support for normal colleges, identify the main problems existing in normal education, seek to deepen the reform of normal education, and constantly improve the quality of teacher training and training". Facing the future development of the country, the development of mathematical science has been mentioned to the most critical position. And for the training of excellent mathematics teaching teachers in basic education, we must hand in the answer paper that satisfies the party and the people.

### **1 Problem in the Training of Mathematics Students' Skills**

The professional skills training of mathematics normal students, like other normal majors, mainly includes professional identity and ethics education, cultivation of educational feelings, Putonghua and writing skills, teaching skills, education management skills, teaching research skills and professional development skills [1, 2]. The professional skill foundation of normal students in the process of training will often affect their future development. Now in the face of teacher qualification certificate examination and recruitment examination in primary and secondary schools, there is many students' performance worrying! Such as inaccurate language, wordiness, poor logic, nonstandard writing on the blackboard, poor professional thinking, insufficient core literacy and so on.

There are many main reasons for the poor skill training effect of normal students majoring in mathematics, such as the lack of students' professional identity; the conflict with the preparation time of postgraduate entrance examination, primary and secondary school teachers are not as promising as postgraduate entrance examination; emphasis on theoretical courses, light practice; imperfect simulation teaching facilities, lack of training facilities, etc.[2-6] In addition, there is a lack of concern for normal education teachers in Colleges and universities, and the teaching methods of teacher education need to be improved.

### **2 Make Clear the Importance of Skill Training of Mathematics Normal Students**

University of Jinan is a key university jointly established by the Ministry of education and

Shandong Province. The School of mathematics science of Jinan University (hereinafter referred to as the college) undertakes the training tasks of public students and ordinary normal students. In order to serve the needs of the national development for the teachers' team, adapt to the development of education and the reform of education evaluation, the college aims to cultivate good teachers with "Improve the moral character of teachers, strengthen the theoretical basis, improve vocational skills, expand employment channels to stabilize employment", and pays attention to the cultivation of teachers' moral and educational feelings of normal students, improves their teaching skills and educational skills, and follows the "Combination of theory and practice, Curriculum" The principle of combining the inside and outside of the classroom, the combination of training competition and the combination of recruitment and examination of the capital examination shall organize the students to carry out the teacher skill training program in an orderly manner. The college has set up a mathematics education and education center to train students' normal skills. The college established the guiding ideology, training purpose, training requirements and organization form of the implementation of teacher skill training in the form of documents.

### **2.1 Guiding Ideology**

The college adheres to the professional school running concept of "casting the soul of teachers, thick foundation, strong skills and stable employment", pays attention to moral cultivation and cultivation of noble teachers' ethics and educational feelings; on the basis of strengthening mathematics theory teaching, attaches great importance to mathematics education course teaching, and follows the principle of "combining theory and practice, inside and outside the classroom, training and competition, and recruiting talents" to innovate practice Teaching mode, enrich the training content of teachers' skills, establish the training system of teachers' professional skills, and cultivate innovative mathematics teachers with noble morality, solid mathematical foundation, advanced education concept and strong teaching skills.

### **2.2 Training Purpose**

Through the implementation of the training program of teachers' skills in mathematics and applied mathematics, the normal students can strengthen professional identity and professional identity, strengthen their understanding of teachers' responsibilities and education feelings, cultivate their lifelong belief in teaching; can use theory to guide teaching practice, and transform the theories and methods of mathematics knowledge, pedagogy and psychology into professional behavior of teaching by teachers, and can transform the theories and methods of mathematics knowledge, pedagogy and psychology into professional behavior The mathematics teachers who can write Chinese characters and mathematical symbols, make visual functional images and geometric figures, mandarin standard and correct mathematical expressions, and have certain ability of mathematics teaching research to adapt to the reform of basic education and education.

### **2.3 Basic Requirements and Precautions of Training**

The basic requirements of teaching: to cultivate educational feelings and good ethics, writing standard Chinese characters, oral expression skills, teaching design skills (mathematics software use skills), mathematics classroom teaching skills, class management skills [6-10].

The training precautions: (1) adhere to the training pattern of vertical and horizontal coordination. The implementation is carried out vertically, from the hospital to the Department to the individual students. The students' skill level is evaluated by the mode of test and competition selection. (2) Insist on the combination of one-way training and comprehensive training. Single training: divide students into several heterogeneous groups (i.e. students from different sources, experiences, knowledge level and organizational ability) into groups, so as to make the team members improve and progress together. They conduct surprise training on oneortwo aspects of teaching skills, and at the same time, use the recording equipment of micro teaching system to obtain feedback timely and accurately Evaluation information. Comprehensive training is a comprehensive exercise of professional skills, such as skill competition. (3) Adhere to the combination of basic skills daily training and competition. For the skills of "three words and one

word" and simple strokes, students are required to strengthen daily training, and the center of mathematics education, teaching and research shall inspect and supervise, and conduct a competition once a year[9,10]

### **3 The Specific Training Contents and Requirements of Normal School Skills Training**

#### **3.1 Education Feelings and the Cultivation of Teachers' Morality**

Training time: First to eighth semester

Specific objectives: To cultivate students' good ethics and education feelings

Main contents: Through expert reports, film watching, volunteer activities, participating in the study of strengthening the country and other ways to guide students to actively understand teachers, care for education, cultivate students' professional identity, strengthen the ideal and belief of serving the country and the people, loving work and dedication, lifelong teaching, moral sentiment of being a teacher, honest and self-discipline, rigorous scholarship, scientific teaching, solid knowledge of keeping pace with the times, care for students People oriented benevolence.

#### **3.2 Writing Standard Chinese Characters (Including Pen Characters, Chalk Characters and Simple Strokes)**

Training time: First to fourth semester

Specific objectives: Write standard and correct, clear strokes, master the shape, structure, stroke, stroke order of 3500 commonly used words, consciously correct typos; write good pen and chalk characters, and be able to complete basic mathematical drawing.

(1) Main content:

(1) To carry out writing skills training in class. The training of 300 Chinese characters per week was carried out. The practice of pen and chalk characters was mainly self-training (blackboard was posted to each dormitory), and the writing materials were handed in every week. The head teacher is responsible for the collection.

(2) Invite students or teachers who have practiced calligraphy to give a report at least once a year to improve students' understanding of the necessity of practicing calligraphy;

(3) Every academic year, the school holds the "three characters and one painting" competition, and the outstanding students are commended by the college.

Test: The examination should be carried out at the end of the training of pen and chalk, and the unqualified students should continue to practice. The instructor collects excellent materials (chalk, blackboard, etc.) from the students.

#### **3.3 Oral Expression Skills, Focusing on Putonghua**

Training time: First to fourth semester

Specific objectives: Basic skills training, so that students can complete and accurate oral expression, can express mathematics teaching content in Putonghua.

Main contents:

(1) Invite the Mandarin testers of the College of liberal arts to give a lecture on Mandarin, focusing on the problems of easy to read mistakes and local dialects;

(2) The education, teaching and Research Center divides the students into groups, and under the guidance of the instructor, determines a theme and carries out Putonghua training after class. The students correct each other's pronunciation and make progress together;

(3) Actively carry out dialogue and "three minute speech" activities to train students' oral expression ability.

Test: Students are required to participate in the graduate Putonghua proficiency test, which is required to reach the standard of level 2 B or above. Before the test, the Putonghua training and testing center of Jinan University also specially conducts pre test training for students.

#### **3.4 Classroom Teaching Design Skills Training**

Training time: The fifth semester

Specific objectives: Combined with the teaching content of mathematics pedagogy, students are required to master the methods of teaching design, the methods of making teaching objectives, analyzing and processing teaching materials, understanding students, making teaching methods, making teaching plans and compiling teaching plans; learn to design and correct assignments in combination with the characteristics of disciplines, and be able to evaluate their own and others' teaching after class. At the same time, master modern teaching technology, especially the production of PPT and the use of Geometer's Sketchpad. Be able to make teaching software and simple teaching aids for teaching, and be able to make lecture and lecture courseware.

Main contents:

(1) In the class of mathematics pedagogy, according to the requirements of the new curriculum standard, let students make clear the three elements of the teaching plan, how to determine the mathematics teaching objectives, how to form the design intention and how to show the teaching process;

(2) Teachers and students learn excellent instructional design together;

(3) The teacher assigned a topic, asked students to complete their own mathematical teaching design, make the corresponding courseware, and then teachers and students communicate together.

Test: After the end of mathematics pedagogy, each student should hand in a complete mathematics classroom teaching design, and the corresponding lecture and lecture courseware, which will be included in the evaluation of mathematics pedagogy.

### 3.5 Teaching Skills Training

Training time: The sixth semester and summer vacation

Specific requirements: lectures and lectures meet the basic requirements of Shandong Normal Students' professional skills competition scoring standards.

Main contents:

(1) The students are divided into groups, led by the instructor, comment on each student's teaching design and courseware, one by one, and then analyze the advantages and disadvantages to improve;

(2) Using the teaching equipment to record the excellent lectures and lectures of the students as training cases;

(3) Organize the preliminary contest and final, invite the middle school teachers as judges in the final, carefully feel the pulse for the students, accurately point out the shortcomings, give suggestions for improvement, and then select the excellent players to participate in the provincial competition.

Detection: each student can independently design teaching according to the teaching content and student status, and can complete the teaching introduction, explanation, questioning, response, consolidation, end of the lecture and complete the teaching reflection; to meet the basic requirements of the education internship teacher who undertakes the teaching task.

### 3.6 Teaching Research Training

Training time: The seventh semester

Specific requirements: Be able to study the problems in mathematics education and complete the study report or research report.

Main contents:

(1) The students are divided into groups, and the simulated students' homework and teaching results are analyzed;

(2) Reading mathematics education literature in groups, discussing the teaching content, teaching methods, the influence of artificial intelligence on mathematics education and students' learning, and completing relevant learning reports;

(3) Select excellent students to carry out in-depth interpretation of relevant educational research topics, and strive to complete the research papers;

(4) Under the condition of permission, the research on mathematical games, teaching aids and geometric sketchboards should be carried out.

Test: Each student completes the education study report, study report and Research Report.

### 3.7 Training of Educational Skills

Training time: The fourth semester and the sixth and seventh semester

Specific requirements: Simulate training of the class teacher's working skills, improve the level of teachers' morality and cultivate their educational feelings.

Main contents:

(1) Divide students into groups, simulate the work of class teacher and take part of the management work of students during the internship;

(2) The activities of daily management, theme class meeting design, extracurricular activities, parent and student forum, individual conversation and social practice are simulated;

(3) Can analyze the students' Ideological and psychological characteristics and ways of doing things, and carry out psychological counseling work;

(4) Learn to write the student's conduct assessment.

Detection: can simulate and complete the common class problem handling and complete the training report.

### 3.8 Education and Recruitment Interview

Training time: The fifth to eighth semester

Specific requirements: Guide to participate in the teacher qualification examination and recruitment examination interview.

Main contents:

(1) To guide teachers to introduce interview standard to students who attend qualification card interview;

(2) According to the students' personal requirements, the students' interview should be guided by teaching mode, teaching method, teaching material content processing, etc., and the guidance of interview link of structural words should be strengthened.

**Table 1.** Schedule of teacher skill training for normal students in School of Mathematical Sciences

	Activity content
The first semester	1. Professional education (October);
	2. Set up volunteer service team, contact service school and establish service plan (October to December);
	3. Implementation of blackboard into the dormitory and Mandarin Group Training (October).
The second semester	1. Volunteer service team to primary and secondary schools (March to June);
	2. Check the blackboard into the dormitory and Putonghua group training, and invite experts to report (calligraphy and Putonghua each) (April to May);
	3. May "three words and one word" contest, speech contest;
The third semester	1. Volunteer service team to primary and secondary schools (September to December);
	2. Check the blackboard entering dormitory and Putonghua group training, organize students to take Putonghua test (October to December);
The fourth semester	1. Volunteer service team to primary and secondary schools (March to June);
	2. Check the blackboard into the dormitory and Putonghua group training, organize students to participate in Putonghua test and pen, chalk test;
	3. May "three words and one word" contest, speech contest;
The fifth semester	1. Volunteer service team to primary and secondary schools (September to December);

	2. Organize speech training for all members (October to December);
	3. Organize students to participate in the teacher qualification examination, and help students interview.
The sixth semester	1. Volunteer service team to primary and secondary schools (March to June);
	2. Organize students to participate in the teacher qualification examination, and help students to interview;
	3. May "three words and one word" contest, speech contest;
	4. Students are organized to be on probation;
	5. Organize students to train their teaching skills (including courseware making and lectures);
	6. To organize the mathematics competition of normal students' professional skills competition of Jinan University and select the contestants.
The seventh semester	1. Organize educational practice (Teaching Practice) and Educational study (September to December);
	2. Organize students to participate in the teacher qualification examination, and help students to interview;
	3. Organize students to participate in the mathematics competition of Shandong Normal Students' professional skills competition (September to November) to select contestants.
The eighth semester	1. Tutor the students who need tutoring in the education recruitment examination or teacher qualification certificate interview (April to June);
	2. Graduation education and ethics report (April June).
The first to the sixth semester, each semester held two high school teaching teachers and experts report.	

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