

A Study on the Promotion of Teacher Professional Competence in Normal University Students through Teaching Competitions

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Abstract: Teacher professional competence is the primary criterion for teacher qualification assessment and a crucial factor influencing education quality. Normal university students must acquire certain professional competence to better meet the requirements of instructional practices. This paper examines the forms and skill requirements of teaching competitions for normal university students and analyzes the development of professional competence in mathematics for normal university students with extensive teaching competition experience. It is concluded that teaching competitions effectively promote the development of teaching practice abilities and self-development capabilities, with less impact on the development of teaching ethics implementation capacity and comprehensive educational capability.

Keywords: Teaching Competitions; Normal University Students; Teacher Professional Competence.

I. INTRODUCTION

The rapid development of society and the strong demand for high-quality talent have imposed stricter requirements on the professional competence and professional skills of primary and secondary school teachers. With the deepening of curriculum and educational reforms, teacher professional competence has been integrated into the standards and guidelines for the teacher qualification exams for primary, secondary, and kindergarten teachers, as well as the professional standards for vocational teachers (trial implementation)^[1]. This has become an important component in strengthening normal university programs and enhancing the educational and teaching abilities of normal university students. As future educators and successors of national talent cultivation, normal university students must possess certain professional competence to meet the demands of societal development.

Domestically, there is extensive research on pre-service teacher education, mostly focusing on the problems related to the cultivation of teaching skills and professional competence in normal university students. However, research on the impact of teaching competitions on the professional competence of normal university students is relatively scarce. Cui Yu, through the analysis of the teaching skills competition for graduates of normal education programs in Henan Province, proposed that teaching competitions can promote the cultivation of pre-service teacher professional competence and provide insights for talent cultivation in higher normal institutions^[2]. Wang Yongchao, through the study of a normal university's teaching competition, found that the comprehensive presentation of teaching qualities and the integrated use of educational technology by participants were prominent, suggesting that teaching skill competitions should closely align with the vocational education characteristics of normal universities^[3]. Yue Xiaoting and others conducted an interview survey on the impact of teaching competitions on the teaching abilities of pre-service physics education students. The

results showed that teaching competitions at the pre-service stage significantly improved students' expression abilities, adaptability, and reflective teaching skills, which were also highly beneficial for their future teaching careers^[4]. Based on existing research, this paper analyzes the forms of teaching competitions and their skill requirements, and examines the development of professional competence in mathematics normal university students with extensive teaching competition experience, exploring the function of teaching competitions in enhancing the professional competence of pre-service teachers.

II. ANALYSIS OF THE CONNOTATION OF TEACHER PROFESSIONAL COMPETENCE IN NORMAL UNIVERSITY STUDENTS

Teacher professional competence encompasses all the abilities necessary for teachers to effectively use educational theories and teaching methods to guide students' learning and complete educational activities. This competence gradually forms and develops through teachers' professional learning and teaching practice.

In 2021, the Ministry of Education issued a document dividing the professional competence of normal university students into four aspects: implementation capacity of teaching ethics, teaching practice, comprehensive educational capability, and self-development^[5]. Accordingly, we believe that the development of teacher professional competence in normal university students should achieve the following:

Firstly, establish correct values and educational philosophies, regulate personal behaviors, and cultivate noble professional ethics and a strong sense of professional identity. A love for the education profession, understanding the professional characteristics of primary and secondary school mathematics teachers, recognizing the importance of teachers to each child's healthy growth, and preparing to contribute to the educational cause are crucial.

Secondly, master subject knowledge, thinking methods, and basic teaching skills. Design teaching activities that align with students' cognitive development characteristics by integrating modern educational theories and curriculum standards, and adopt appropriate teaching methods to guide students' learning and thinking during classroom instruction. Gradually acquire classroom management skills and respond positively and calmly to unexpected classroom situations.

Thirdly, cultivate an awareness of teaching and educating, understand the principles and methods of moral education in primary and secondary schools, and combine knowledge acquisition, skill development, and moral cultivation in alignment with the characteristics of each subject. Focus on students' mental health growth and objectively evaluate students with a developmental perspective.

Fourthly, normal university students should adopt a lifelong learning philosophy, set high standards for their professional development, consciously diagnose and reflect on their educational practices, and propose optimization strategies to develop self-development capabilities.

III. INTRODUCTION TO PRE-SERVICE TEACHING COMPETITIONS

With the reinforcement of educational reforms, society has placed higher demands on the development of normal university students. Normal education is the cornerstone of the education sector^[6], and to provide society with a higher quality teaching workforce, various normal universities have increasingly emphasized the cultivation of teacher professional competence in normal university students. Teaching practice is an essential method for cultivating and enhancing teacher professional competence in normal university students. Although normal universities, as important sites for the cultivation of normal university students, have taken measures to adjust teaching models and improve the past focus on theoretical instruction at the expense of teaching skills development, opportunities for normal university students to engage in teaching practice and receive targeted feedback and guidance from instructors remain limited due to constraints such as facilities, class sizes, and instructional hours. The existence of teaching skills competitions aims to meet the demands of basic education reform and development for teacher training, improve the teaching skills of normal university students, and strengthen their practical application abilities^[7]. Through specific teaching practice activities, these competitions enhance teaching skills and comprehensive qualities, providing an excellent training platform for developing teaching skills and improving professional competence during the pre-service stage. To deepen educational and instructional reforms and provide more opportunities for normal university students to engage in teaching practice activities, normal education institutions nationwide have initiated a wave of teaching competitions.

A. Page Layout and Font Face

In recent years, various normal universities have incorporated the cultivation of teaching professional competence into their talent development programs. For instance, the secondary schools at Zhaoqing University utilize teacher training teams and related student organizations to actively create various platforms for teaching skills and professional competence competitions (such as hard pen calligraphy competitions, micro-lesson production competitions, blackboard design competitions, lesson presentation competitions, and teaching skills competitions). These platforms enable normal university students to comprehensively and multi-dimensionally showcase their teaching skills and improve various teaching abilities. For normal university students, participating in teaching competitions not only allows them to earn recognition and rewards but also provides opportunities to hone their teaching skills. Therefore, normal universities hold annual teaching competitions, which attract a large number of enthusiastic participants. Competitors diligently prepare for the competition by selecting topics, designing lessons, creating courseware, and conducting mock lessons, allowing them to accumulate valuable lesson preparation experience. Additionally, during the competition, they can observe others' performances and exchange teaching techniques with other participants. After the competition, they can review their own performances, analyze feedback from judges to identify issues, reflect on and summarize areas needing further improvement, accumulate competition experience, and enhance their teaching skills. However, for normal university students to participate in higher-level teaching competitions, such as the Guangdong Province Undergraduate Teaching Skills Competition for Normal University Students or the "Tian Jiabing" Cup National Teaching Skills Competition for Normal University Students, they must go through multiple selection stages, including class-level, department-level, and university-level competitions, to ultimately qualify.

Across the country, there are many types of teaching competitions aimed at normal university students. The requirements and formats of these teaching skills competitions vary at different levels, but the concepts, modes, organizational forms, and scoring standards of the competitions are all characterized by the distinctive features of teacher education. Comparing various levels of teacher skills competitions, they generally include scoring on teaching design, and then proceed through segments such as lesson presentation, simulated teaching, impromptu speech, and defense, with on-site judges scoring the contestants' performances.

B. Requirements of Teaching Competitions for Mathematics Normal University Students

The teaching competitions that normal university students participate in during the pre-service stage are characterized by their distinct features, with different competition segments imposing varying requirements on the participants' abilities.

(1) Teaching Design

Teaching design is a crucial component of a teacher's instructional work and an important reflection of a teacher's professionalization^[8]. As the basis for teachers to conduct instructional activities, teaching design is an indispensable part of teaching competition assessments. This segment requires participants to possess advanced textbook analysis and teaching design abilities, linking teaching concepts closely with instructional practice and incorporating them into the design of teaching activities. Normal university students must establish teaching objectives that reflect the requirements for knowledge, skills, and innovative thinking, in accordance with curriculum standards, and considering students' cognitive and developmental characteristics. Additionally, they need to manage the coherence of teaching content and ensure smooth transitions in teaching activities, using methods that suit the students' characteristics and effectively inspire mathematical thinking and problem-solving. When arranging exercises and homework, they must implement the national "double reduction" policy, designing tasks that reinforce deep thinking, knowledge mastery, and problem-solving skills.

(2) Lesson Presentation

Lesson presentation is a simple teaching research activity, free from time and space constraints, that can greatly showcase a teacher's instructional quality, teaching philosophy, pedagogical ideas, and basic teaching skills, while also easily exposing existing problems in teaching.

The lesson presentation competitions that normal university students participate in during the pre-service stage are mostly conducted in the form of pre-lesson presentations. Participants need to combine courseware and explain to a panel of experts within 8 to 15 minutes their analysis of the lesson content, teaching design, and philosophy; they must clearly articulate what content will be taught, how the teaching activities will be conducted, and why this approach is chosen.

This requires participants to thoroughly study the textbooks during lesson preparation, understand curriculum standards, and select appropriate teaching methods and strategies based on the teaching content and students' actual situations, thereby reasonably designing the teaching process. Therefore, lesson presentations also require normal university students to possess certain textbook interpretation skills, the ability to apply educational theories and teaching design skills.

(3) Simulated Teaching

Simulated teaching sessions test participants' abilities to apply teaching methods, organize instruction, and manage classrooms. Participants must implement teaching objectives and complete instructional tasks on time, based on their familiarity with the teaching process. During simulated teaching, they should fully utilize modern information technology, choose appropriate teaching methods to guide students in independent exploration and collaborative learning, help students grasp key points, and overcome difficulties. Additionally, they should use suitable teaching evaluations to understand students' grasp of new knowledge. When students have difficulty understanding certain concepts, participants must flexibly adjust teaching strategies, encourage active thinking, and enhance interaction with students.

(4) Defense

After the simulated teaching, participants must answer questions posed by the judges. The content of these questions can vary but generally revolves around issues encountered during the mock lesson, participants' understanding of the teaching content, and explanations of teaching principles. This requires participants to think quickly and respond logically and systematically to the judges' questions. Responses must align with modern views on teachers, students, and education, presenting a challenge to participants' on-the-spot adaptability and subject-specific expertise.

IV. THE FUNCTIONS OF TEACHING COMPETITIONS IN CULTIVATING PRE-SERVICE TEACHER PROFESSIONAL COMPETENCE

Teaching competitions for normal university students in the pre-service stage are generally held within normal universities, with their instructional activities targeted at fellow university students acting as students. Therefore, in terms of enhancing professional competence, teaching competitions have a significant impact on the development of teaching practice abilities and self-development capabilities, while having less impact on the implementation capacity of teaching ethics and comprehensive educational capability.

A. Enhancing Teaching Practice Abilities for Normal University Students

Educational activities are highly practical in nature^[9]. During their university years, normal university students not only need to learn and master essential educational theories but, more importantly, they need to apply these theories proficiently in educational practice and improve their professional abilities through practice. Teaching competitions provide them with a platform to improve their teaching skills and comprehensive qualities through specific teaching practice activities and offer more opportunities for practical teaching experience. Each teaching competition has a comprehensive scoring system that covers all aspects of participants' teaching skills. The scoring criteria are rational and finely divided, with specific and detailed requirements for each competition segment. Participants train according to these scoring criteria before the competition, which guides, improves, and motivates them to enhance their teaching skills and professional competence. Moreover, segments such as lesson presentations, defenses, and impromptu speeches in teaching competitions effectively improve participants' subject knowledge, the ability to apply educational theories, logical thinking skills, and adaptability. Normal university students who participate in teaching competitions accumulate considerable experience through multiple levels of competition, from department-level to university-level. They receive one-on-one or group guidance from professional teachers, who provide targeted training on their deficiencies, significantly improving their overall competence.

(1) Textbook Interpretation and Teaching Design Abilities

The primary task of a teacher's instructional work is to study textbooks. Textbook content is systematically organized, such as in the People's Education Press primary school mathematics textbooks, which are structured to progress from simple to complex, in a spiraling manner. This requires participants in teaching competitions to interpret textbook content and grasp its overall structure when designing lessons. Mimicking, as the initial form of learning and the first step of creation, is an essential means for pre-service teachers to conduct effective teaching. After understanding the mathematics

curriculum standards and textbook content, participants outline the main teaching thread for the lesson. Due to a lack of practical teaching experience, it is challenging to gauge the actual cognitive level and psychological characteristics of students at different grades. Participants need to utilize online resources extensively, search for exemplary teaching cases and designs from frontline teachers, analyze student situations, and incorporate the highlights and features of these teachings creatively and adaptively. This helps avoid unrealistic or overly idealistic design issues. However, online teaching resources are abundant but vary in quality. Participants must sift through vast amounts of material to identify accurate and useful information, thereby enhancing their sensitivity to textbook content handling and capturing teaching highlights. Comparing numerous teaching designs can inspire participants and generate ideas for creative teaching designs.

All teaching activities must be based on curriculum standards and educational theories. Participants typically have professional guidance teachers who help them understand how to interpret textbook content using curriculum standards and apply educational theories in teaching design.

(2) Blackboard Design Abilities

In classroom teaching design, the teacher's blackboard design plays a crucial role by focusing on teaching objectives, strictly adhering to teaching principles, and integrating course content characteristics, students' cognitive features, and the teacher's guiding methods. It visualizes abstract knowledge and organizes complex information clearly, effectively highlighting key points and aiding students in consolidating their understanding and mastering knowledge^[10]. Clean and well-organized blackboard work is a basic skill that teachers must possess. Through observing teaching competitions, it is evident that normal university students write fluently on the blackboard with appropriately sized characters. Their blackboard designs are logical and well-organized, clearly presenting their teaching ideas. Some use charts in their designs, making the blackboard content clear and innovative.

(3) Teaching Language Organization Abilities

Teaching language is a vital information carrier for teacher-student interactions in classroom activities and an essential means for conducting teaching. Through the training of teaching competitions, normal university students learn to organize their language effectively for teaching. To better guide students in learning mathematics, they pay attention to using precise and scientific terms, clear and understandable sentences, and logical structures in their teaching. They also modulate their tone and pitch to capture students' attention based on their inattentive tendencies. Using vivid and engaging language, they draw students into the classroom, creating a relaxed and enjoyable learning atmosphere.

Classroom teaching evaluation is a crucial part of teaching activities and an effective means to promote active learning among students. Mathematics normal university students who have participated in teaching competitions tend to be more flexible and varied in their evaluation methods. Their evaluations are purposeful and not limited to generic phrases like "good," "great," or "excellent." Instead, they provide targeted feedback based on specific classroom performances, aiming to encourage further thinking and learning, helping students experience the joy of success in mathematics.

Effective classroom questioning is a catalyst for successful teaching. Observations of teaching competitions show that most mathematics normal university students avoid mechanical questions like "Is this right?" "Isn't it?" or "Is it okay?" and seldom ask questions that students can answer without thinking. They focus more on comprehension-based questions, breaking down complex problems into a series of related questions. Their questions are clear and specific and can lead students from simple to complex, gradually prompting deeper thinking.

(4) Classroom Adaptability

Classroom adaptability refers to a teacher's ability to ensure the smooth conduct of teaching by quickly responding, decisively making decisions, and flexibly handling unexpected situations in the classroom^[11]. Although participants thoroughly prepare and rehearse their lessons before competitions, unforeseen events can still occur during the competition. Participants' adaptability is thus a significant challenge. For instance, during simulated teaching competitions, peers acting as students may not follow the expected course, and their answers might not match the anticipated responses. Participants must adjust their teaching strategies and methods on the spot, skillfully use teaching language to manage the classroom atmosphere, and guide students back to the lesson. Additionally, unexpected issues like

sudden power outages, malfunctioning courseware, or computer failures may arise during competitions. Participants must quickly make appropriate decisions to ensure the smooth conduct of teaching activities. Mathematics normal university students with multiple competition experiences report that participating in teaching competitions has helped them accumulate substantial practical teaching experience, improving their on-the-spot performance and adaptability, enabling them to handle unexpected events calmly in future work and life.

(5) Teaching Demeanor

Teaching demeanor reflects a teacher's overall quality. Competitions require participants to conduct live simulated teaching, facing not only students but also a panel of expert judges, which poses a considerable challenge. Each competition hones the participants' resolve, as their mindset determines their performance, helping them conduct teaching activities calmly and effectively in the future. Compared to other normal university students, those who have participated in teaching competitions display more confidence, composure, and poise in their teaching. They maintain a gentle and approachable demeanor, make eye contact with students, interact through smiles and nods, and use appropriate body language to support their teaching. Therefore, natural teaching demeanor is more evident in normal university students with extensive teaching competition experience.

B. Accelerating Role Transition for Normal University Students

Participating in teaching competitions allows normal university students to assume the role of teachers earlier, establishing the necessary professional confidence and cultivating teacher role awareness^[2]. Teaching competitions require normal university students to conduct teaching activities in the role of "teachers," and the evaluation criteria are based on the basic requirements for frontline teachers. Although normal university students are still in school and have not yet stood on the actual podium, and thus cannot fully grasp the subject knowledge system and primary and secondary school textbook content as well as frontline teachers, nor have they accumulated rich practical teaching and classroom management experience, they can use the opportunity provided by competitions to become familiar with each segment of teaching practice, enhance their teaching skills, and develop strong emotional regulation and self-control abilities, as well as the capacity to handle unexpected situations calmly and reasonably. They can also gain a deeper understanding of the professional characteristics of primary and secondary school teachers, fostering a sense of professional identity with the teaching profession. These experiences will significantly shorten the pre-service learning phase and post-employment transition period of their teaching careers, improving their educational and instructional levels.

C. Enhancing Self-Development Capabilities in Normal University Students

Teaching practice activities often reveal the deficiencies and weaknesses of normal university students. When reflecting and reviewing these activities, normal university students can analyze and research teaching practice issues and attempt to propose improvement strategies, fostering a sense of reflection and critical thinking. Under the guidance of their instructors, they gradually master the basic methods of educational research. Participation in teaching competitions is not limited to a single opportunity; normal university students can communicate and interact with other participants during competition training, forming a community where they observe and learn from each other, mastering basic team collaboration strategies, and developing group assistance and cooperative learning abilities. Moreover, with the promotion of "Internet + Education" and the widespread adoption of smart classrooms, the application of modern educational technology in teaching has become very common. This requires normal university students to keep pace with the times, mastering essential modern educational technology tools and accessing high-quality teaching resources. Teaching competitions often require normal university students to use advanced educational technology in classroom teaching, enabling them to master the essential information technology skills and methodologies for professional development.

In recent years, teacher recruitment in regions such as the Pearl River Delta in Guangdong Province has focused on assessing fresh graduates through comprehensive education and subject knowledge written exams, simulated teaching sessions, lesson presentations, and structured interviews. Among these, simulated teaching and structured interviews frequently appear in new teacher recruitment assessments, primarily evaluating the basic teaching practice abilities and on-the-spot adaptability of recent graduates. Interviews with several past mathematics normal university graduates revealed that those with extensive pre-service teaching competition experience demonstrate significant advantages in job hunting and postgraduate entrance exams. Compared to ordinary graduates, they often secure desirable job positions more quickly, adapt to their teaching roles promptly, and successfully complete their teaching tasks.

For normal university students, participating in pre-service teaching competitions certainly requires more effort and dedication compared to others to acquire more comprehensive knowledge, design lessons, and repeatedly refine and rehearse teaching. However, it also provides more opportunities to receive guidance and training from professional teachers, enabling a rapid and holistic improvement in their teaching abilities within a short period of time^[4]. Additionally, the honors and awards earned during the competitions, along with the accumulated practical teaching experience, enhance the employment competitiveness of normal university students. This helps them successfully pass the interviews for primary and secondary school teacher qualifications and teacher recruitment, greatly benefiting their future teaching careers and professional development.

V. CONCLUSION

Through the analysis of the forms of teaching competitions and their requirements for the professional competence of normal university students, this paper examines the role of teaching competitions in enhancing the pre-service teacher professional competence. The study shows that teaching competitions effectively improve the teaching practice abilities and self-development capabilities of normal university students. However, their impact on enhancing the implementation capacity of teaching ethics and comprehensive educational capability is relatively limited.

Firstly, teaching competitions provide normal university students with a platform for practical teaching. Through specific teaching practice activities, these students have significantly improved their abilities in teaching design, blackboard design, teaching language organization, and classroom adaptability. Additionally, through these competitions, they can accumulate lesson preparation experience and enhance their textbook interpretation and teaching design abilities, which help them better cope with various teaching challenges in their future careers.

Secondly, teaching competitions accelerate the role transition of normal university students, fostering professional confidence and cultivating teacher role awareness. The segments of simulated teaching, lesson presentation, and defense in the competitions enable these students to conduct teaching activities as "teachers," further deepening their sense of identity and responsibility towards the teaching profession. This is significant in shortening the adaptation period and improving the educational and instructional levels when they begin their actual teaching careers.

Furthermore, teaching competitions help improve the self-development capabilities of normal university students. Through self-diagnosis and reflection during the competitions, they continuously improve their teaching methods and strategies, cultivating a sense of reflection and critical thinking. Meanwhile, interactions and cooperation with other participants enhance their team collaboration skills and the application of information technology, providing a solid foundation for their professional development.

However, the study also finds that teaching competitions have a limited impact on enhancing the implementation capacity of teaching ethics and the comprehensive educational capability of normal university students. This is mainly due to the differences between competition environments and actual teaching environments. The "students" faced in competitions are mostly peers, lacking interactions with real primary and secondary school students and opportunities for moral education practice. Therefore, how to further enhance the implementation capacity of teaching ethics and comprehensive educational capability in pre-service education remains a topic for further exploration and resolution.

In summary, teaching competitions play an important role in promoting the teaching practice abilities and self-development capabilities of normal university students. However, there is still room for improvement in enhancing the implementation capacity of teaching ethics and comprehensive educational capability. Future research could consider how to better integrate moral education practice into pre-service education to comprehensively enhance the professional competence of normal university students, providing a more scientific and effective path for cultivating high-quality primary and secondary school teachers.

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