Advances in Educational Technology and Psychology (2023)
Clausius Scientific Press, Canada

DOI: 10.23977/aetp.2023.071519
ISSN 2371-9400 Vol. 7 Num. 15

# *A Study on the "Trinity" Educational Study Model of Teacher Education Students' Main Participation under the Background of Professional Certification*

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***Keywords:*** Teacher training professional certification; Educational study; Trinity; Training mode; Double mentor system; Curriculum Ideology and Politics

***Abstract:*** Using the theory of "interactive reflection training mode" for normal school students based on socio-cultural theory and constructivism theory, a "trinity" education and study mode with the participation of teacher and student subjects was constructed, which includes "case driven classroom teaching, peer collaboration education survey, and" double teacher "follow-up cooperative discussion. The double teacher system played a key role. To think and construct educational study within the curriculum system of normal university students, and to not only build educational study as a course after educational internship, but also fully consider the integration and integration of educational study with other practical courses such as educational internships and educational internships. In the process of educational training, special attention should be paid to binding educational training with curriculum ideological and political education, so that normal school students can experience professional ethics during the internship practice process, and enhance the experience of teacher ethics into an educational sentiment during the study process.

## 1. Introduction

During the process of national teacher training professional certification, an expert raised a question to the author, which is how do you carry out educational probation, internships, and study for teacher training students? Why should we establish educational stduy courses? The so-called educational study generally refers to a series of planned and organized educational and scientific research activities carried out by normal school students under the guidance of teachers, using the educational and teaching theories they have learned to analyze, explore, and research related problems

in educational internship work, in order to improve their reflective and research abilities. The certification of normal school majors is based on the basic concept of "student-centered, output oriented, and continuous improvement". As a normal school major, according to the training objectives of the profession, it mainly aims to cultivate high-quality people's teachers, who not only need to cultivate noble professional ethics, solid disciplinary foundation, and strong teaching ability, but also need to cultivate their certain research ability, independent development ability, and enhance the development potential of normal school students. In the process of professional teaching, teachers need to teach normal school students to understand that teachers are reflective practitioners who can use critical thinking methods, develop the habit of reflecting and analyzing educational problems from different perspectives such as student learning, curriculum teaching, and subject understanding, and teach normal school students to master the general methods and skills of educational practice research, so that normal school students have a certain level of innovation consciousness and educational research ability. Currently, while emphasizing the cultivation of practical ability of normal school students, normal school majors should increase the cultivation of practical reflection and research ability of normal school students, which is also an urgent need for improvement in the construction of normal school majors. In the process of national teacher training professional certification by the Ministry of Education, there are also high requirements for cultivating reflective teachers. Normal students' reflection on educational theory and practice is an important aspect of cultivating the reflective ability of pre-service teachers. In fact, since the 1980s, terms such as "reflective teacher", "reflective ability", "reflective teaching", and "self reflection" have gradually entered people's vision./ There has been a worldwide craze for the pursuit of "reflective practice" Cultivating reflective teachers has become a common pursuit of teacher education both domestically and internationally. The cultivation of reflective teachers is a continuous process, and it is not only the responsibility of post service teacher education, but also the responsibility of pre service teacher education[1]. On the basis of educational probation and educational internships, it is highly necessary to carry out teacher model student education study.

Since the birth of educational psychology in 1903, behaviorism has evolved into cognitivism, and on the basis of absorbing the cognitive structure construction ideas of Piaget[2] et al., constructivism theory has emerged. Industry experts have pointed out that "in addition to strengthening the learning of teaching theories and methods, normal school students should more importantly strengthen the research and teaching process, that is, learn to always pay attention to reflection and analysis of the teaching process." [3] The author's university has applied social and cultural theory and constructivist theory to propose and establish the theory of "interactive reflection training mode" for normal school students [4]. We have conducted long-term practical exploration in cultivating reflective teachers.

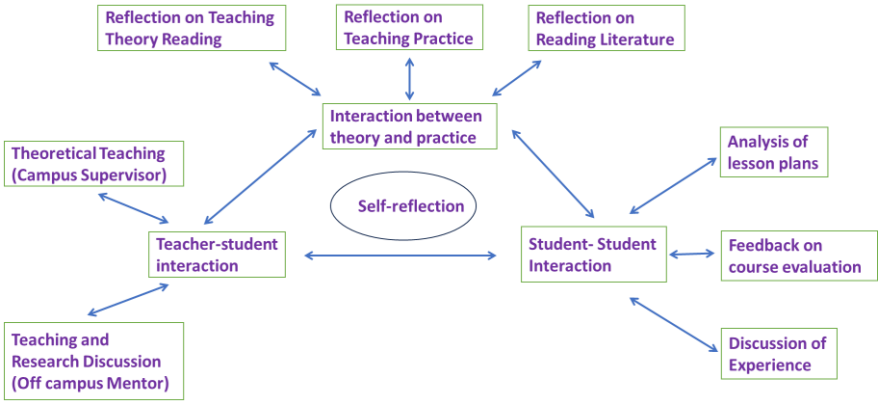


Figure 1: Interactive Reflection Training Model for Normal University Students.

Figure 1 reflects the relationship between theory, practice, and reflection in the interactive

reflection mode of normal school students. The interactive reflection training mode of normal school students takes "self reflection" as the core, and "interaction between theory and practice, teacher-student interaction, and student-student interaction" as the form of reflection, helping normal school students form effective strategies for teaching reflection.

The education and training of teacher education majors is an important link in achieving the training goals of teacher education majors, especially an important lever for cultivating reflective teachers. Based on the interactive reflection training model for normal students, the mathematics teacher education major where the author is located has constructed a "three in one" participatory teaching model centered on the development of normal students in the training process of normal student education. It refers to the main body of normal students and advocates for "doing in learning, thinking in doing, and changing in thinking". Through three complementary approaches: case driven classroom teaching, collaborative discussions with 'double teachers' follow-up, and educational surveys through peer collaboration, we aim to promote the learning of "principles, skills, and research" by normal school students, including educational principles and subject teaching knowledge, educational skills, and educational research abilities. The coordinated development of these three aspects is a spiral upward model that promotes the career development of normal school students.

## 2. The "Trinity" Model of Teacher Training Students' Main Body Participation in Education Study

Based on "self-reflection" as the core, an interactive reflection training model with three forms of reflection: "interaction between theory and practice, interaction between students and students, and interaction between teachers and students. The author has constructed a "three in one" educational research and development model in the mathematics teacher education major, which corresponds to the "case driven classroom teaching, peer collaboration educational investigation, and" double teacher "follow-up cooperative discussion". The author places educational research and development within the curriculum system of teacher education students, and not only constructs educational research as a course after educational internships. Instead, it fully considers the integration and integration of educational studies, educational probation, and other practical courses, as follows.

### 2.1. Case driven classroom teaching

In the second semester of third grade, the major has set up a course called "Writing and Expression", which includes some teaching related to professional paper case studies. This course is designed to use the study of primary and secondary school mathematics education paper cases as a carrier, and is a teaching method that extracts concepts through the joint analysis of mathematics and mathematics education paper cases by teachers and students. It strengthens the combination of mathematics education practice and theory, and promotes normal school students' understanding and reflection on educational phenomena. The teaching concept of mathematics curriculum reform and education has been formed, generating mathematical teaching knowledge and educational concepts. Through the teaching of paper cases, normal school students can not only understand the development trends of domestic and foreign mathematics basic education reform and research, but also master the methods of mathematics education reflection. Through the teaching of paper cases, normal school students have deepened their understanding of the topic selection, implementation process, research methods, and writing standards of mathematical education research papers through reflection on educational theory, educational practice, and teaching research literature.

## 2.2. Educational survey on peer collaboration

Dewey was the first to view teachers as reflective practitioners. Reflection originates from doubts and confusion arising from direct experiential situations. Reflection is not simply a program or technique that can be packaged for teachers to use, but a master's way of facing and reflecting problems. China's "Curriculum Standards for Teacher Education (Trial)" also proposes that cultivating "reflective practitioners" is the need and direction of teacher education reform in China. The cultivation of educational practice ability for normal school students should be based on reflective practice as the theoretical foundation, and a training model based on reflective practice should be constructed. [5] The teacher training students organized by the author's major enter primary and secondary schools in the form of teams. Through division of labor and mutual assistance, they understand the educational life of the school from multiple perspectives, experience the complete process of educational research, and acquire knowledge of teaching and learning through actions. For example, my major offers a 2-week "Education Internship" in my sophomore year, "Future Mathematics Classroom Design" in the first semester of my junior year, "Mathematics Teaching Research" elective course and "Writing and Expression" compulsory course in my junior year, and a 16-week "Education Internship" course in the first semester of my senior year. The "Education Study" course is offered in the last two weeks of the first semester of the senior year. In the course, normal students are divided into groups to carry out cooperative teaching and conduct educational surveys, which not only cultivates their communication and self-learning abilities, but also cultivates their interest in practical reflection and research. This reflects the reflective approach of "student student interaction". Through the investigation of the real educational environment by normal students, the topic selection of educational papers by normal students will have practical significance. Group cooperation in developing scientific and reasonable survey questionnaires, conducting project-based project analysis, and writing group investigation reports can effectively cultivate the ability of normal students to write research papers and lay a foundation for their future development.

## 2.3. Collaborative discussion on the follow-up of "Double Teachers"

According to the "trinity" collaborative training mechanism of "universities, governments, and local basic schools" for teacher training students, the author's major has established a "dual mentor system" that meets the national teacher training level two certification standards. In terms of mentor selection, personnel allocation, practical guidance, ability improvement, condition guarantee, assessment and evaluation, dynamic adjustment, and other aspects, a systematic "dual mentor" system has been established between university teachers and outstanding middle school teachers to jointly guide educational practice, achieving "teacher-student interaction" between teachers on and off campus and normal students. Currently, universities generally implement a dual mentor system for educational internships. However, there are relatively few cases of implementing the dual mentor system in the education training process. The author's major has designed practical courses from the off campus " Educational probation " course to the mandatory "Future Mathematics Classroom Design", which embed teaching videos of observing excellent teachers, and carry out reflection and study on the off campus mentor's observation of courses. And in the course of "Educational Internship", it is stipulated that normal school students must participate in the weekly teaching and research activities of the mathematics teaching and research group in the off campus internship base. Finally, after the internship, the school and middle school guidance teachers jointly participate in the open class review, grinding, and other training activities of normal school students, forming a multi-dimensional, time span, and content from shallow to deep three-dimensional education and research model with the participation of normal school students as the main body.

Normal school students lack a perceptual understanding of mathematics teaching, often passively

accepting mathematical education theories, and have a weak sense of reflection. Compared to other methods, discussion method is more participatory, more conducive to unleashing students' learning initiative, and can form a more comprehensive understanding of others' experiences and knowledge. In courses such as "Education Internship", "Education Study", and "Graduation Thesis", The author's major determines several topics to be discussed in education and teaching for normal school students to choose to participate in and engage in "double teacher follow-up" collaborative discussions. Through the dual mentor system, in the process of normal school students' educational internships, guiding education and teaching research is set as the third teaching guidance task that basic school mentors must complete, in addition to classroom teaching guidance and class management guidance. Basic school mentors combine their own long-term education and teaching research. The focus areas of research are often more grounded and practical than those of university guidance teachers. Through face-to-face guidance from basic school mentors, teachers and students can discuss how to apply the educational theories learned by normal students in universities to educational practice. For example, the topics of six normal students jointly guided by the author and middle school teachers are: research on strategies for preparing middle school mathematics test paper propositions, exploration of precise teaching strategies for middle school mathematics implementation Research on problem-solving strategies for line segment and minimum value problems, the application of "combination of numbers and shapes" in middle school mathematics, K-shaped graphs in the context of linear functions, and the study of misconceptions in statistics and probability knowledge among middle school students. The major institutionalizes the mechanism of cooperative training for normal school students to write graduation theses into a dual supervisor system, which should also include incentive mechanisms and be implemented. If students mainly rely on basic school teachers for topic selection and guidance. The major can reimburse some of the thesis guidance fees to primary and secondary school supervisors through professional construction funds. Allowing basic school supervisors to participate in the guidance of normal school students' graduation theses can also promote the development of basic school supervisors' own research abilities. Normal school graduation thesis topics are selected in the early stage of the graduation internship in the second semester of third grade, and the graduation thesis is completed before the graduation in the second semester of fourth grade, which extends the time span. It is beneficial for the graduation thesis to absorb the achievements of educational research.

Under this dual mentor system, educational research and graduation thesis guidance can enable normal university students to learn from each other's strengths and complement each other's strengths, maximize the utilization of theoretical resources from university mentors and practical resources from basic school mentors, and improve the overall development of normal university students' abilities[6].

Of course, the selection of graduation thesis topics will also consider the personalized development of normal school students. Some normal school students who take the postgraduate entrance examination tend to do research papers in the field of mathematics, and their majors are also allowed. Through educational research, normal school students will be more inclined to do research in education and teaching. For example, among the 2023 graduates of my major, 2.08% of them are engaged in primary school mathematics education topics; Middle school mathematics education projects account for 89.59%; The proportion of university mathematics related topics is 8.33%. Middle school mathematics education related topics are the main consideration for normal school students, which is consistent with the goal of cultivating people's teachers with a focus on secondary schools. Of course, the author's region is a developed area in southern Jiangsu, with good teacher treatment. Normal school students have a strong willingness to engage in basic education, and their willingness to take postgraduate entrance exams is not strong. The willingness to choose academic papers is also not high. What is the appropriate proportion of undergraduate normal students majoring in mathematics and normal education to focus on educational related topics? The author believes that the first thing to consider is the positioning of the training objectives of the major. Secondly, the

employment direction of graduates should be considered. In short, the topic selection should be oriented towards the output of the major.

## 3. Conclusion

The "Trinity" educational training model with the main participation of normal students is based on the interactive reflection training model of normal students, which combines the three methods of "case-driven classroom teaching, peer collaborative educational investigation, and" double teacher "follow-up cooperative discussion. This model aims to cultivate the subjective initiative of normal students in reflection and research abilities. The dual mentor system plays a crucial role. In the process of educational study, special attention should be paid to binding educational study with curriculum ideological and political education, so that normal students can experience teacher ethics during the internship practice process, and elevate the teacher ethics experience to the sentiment of education. Based on the above training model, we scientifically and reasonably formulate the curriculum objectives of educational study based on the professional training objectives and graduation requirements. By designing a manual for educational study reports, students can record the process of educational study; Design evaluation standards for educational study, which can evaluate the achievement of educational study and assess the reflection and research abilities of normal school students, and continuously improve the overall educational study plan.

## Acknowledgements

Fund Project: Jiangsu Province Higher Education Reform Research Project Approval Project (No. 2019JSJG229); Changshu Institute of Technology "Curriculum Ideological and Political" Demonstration Major Construction Project.

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