Development Strategy of Teachers' Literacy of Normal Students Based on the Concept of "OBE"

Li Sun[1], Liang Fang[1] and Lu Liu[1]
[1]College of Mathematics and Statistics, Taishan University, 271000, Tai'an, Shandong, China.
*Corresponding author email id: lisun999@163.com

Abstract – The concept of OBE (outcomes based education) highlights the output orientation, focuses on achievement education, and pays attention to the real subject teaching ability of normal students after graduation. Taking the development of teachers' subject teaching literacy required by the society as the starting point, it reversely designs the curriculum system, takes learning and teaching, and is based on "professional guidance + questioning and exploration + expansion and innovation + evaluation and reflection" , improve the course teaching, pay attention to practical teaching, realize "lesson learning, case discussion, experience polishing, practical exchange, sharpening research and thinking, and practicing and reaching far", display and exchange the classroom teaching design, highlight the development process of teachers' professional skills, and promote the sustainable development of normal students' teaching literacy.

Keywords – "OBE" Concept, Practical Teaching, Teacher Literacy, Development Strategy.

I. OUTPUT ORIENTED CONCEPT OF TEACHER LITERACY DEVELOPMENT

Based on the concept of OBE education, focusing on the needs of economic and social development and basic education reform, the actual employment of basic education, and starting from the aspects of school positioning and development objectives, student development and parents' expectations, revise the training objectives and develop the training scheme. Therefore, by integrating various resources and comprehensively considering the element structure in the teaching system [1], in the dynamic practice process of "optimizing curriculum, innovating teaching methods, strengthening practice and social needs", normal students are guided to perceive, experience, ponder, understand and summarize the elements of teachers' literacy in practice, so as to form and apply the teaching "characteristics" in teaching practice [2], Generate teaching ability, realize leading value creation and cultural inheritance, accumulate teaching knowledge (Pedagogical Content Knowledge, PCK for short) and practical teaching knowledge in practice, and improve teachers' subject teaching literacy of normal students [3].
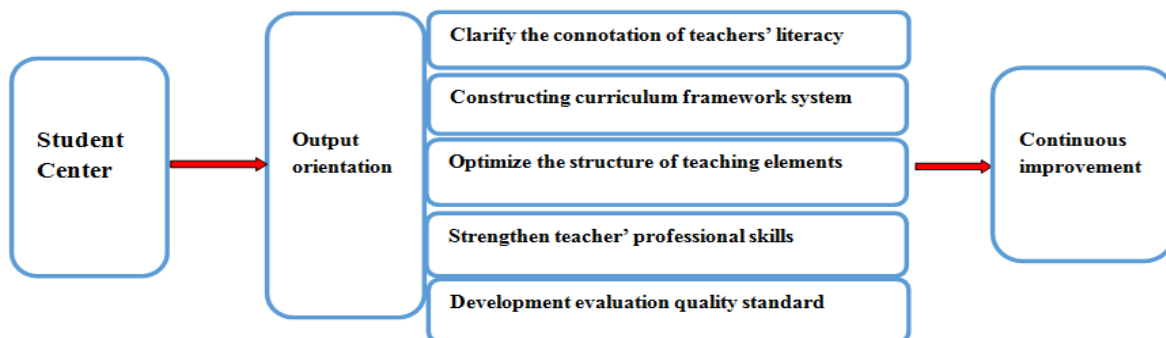

Fig. 1. Formation mechanism of normal students' literacy.

A. *Clarify the Connotation of Teachers' Literacy of Normal Students*

Normal students' teaching literacy refers to the teachers' professional requirements, sense of social responsibi-

-lity and mission, professional cultivation, education and teaching ability formed by normal students in the process of professional knowledge learning and skill practice, which can meet the needs of the development of basic education and promote their own professional development Knowledge renewal and practical innovation ability (Educational feelings, discipline literacy, professional literacy, innovation reflection, educational concept) (Figure 2).
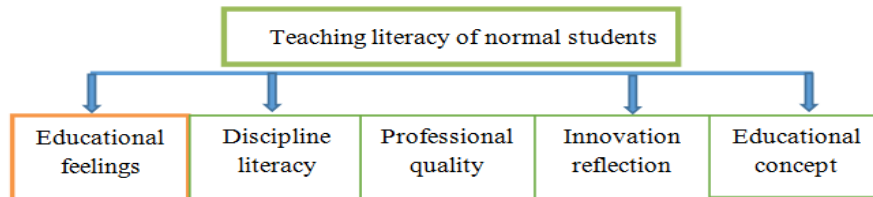

Fig. 2. Teacher literacy of normal students.

(1) Discipline literacy is the core literacy formed through professional knowledge learning and training.

(2) Professional quality is the basic quality of teaching in middle school and the prerequisite for normal students to form teaching ability.

(3) Innovative reflection can adapt to the needs of the times and educational development, master reflection methods and skills, have a certain sense of innovation, and use critical thinking methods to analyze and solve education and teaching problems.

(4) The concept of education includes the values of basic education, the concept of students, the sense of teaching efficacy, the concept of diversified talents, the concept of school educational activities and the concept of new teachers.

(5) Educational feelings are teachers' core qualities marked by caring for students and educating people.

B. *Reconstruction of Curriculum Framework System*

The construction of curriculum system has a clear "mapping" relationship for the development of teachers' literacy structure of normal students, each course of the curriculum system should have a certain supporting relationship for the development of teachers' literacy (high support, medium support and weak support). Therefore, the curriculum system is divided into general education courses, professional education courses, discipline education courses and practical courses, so as to lay a solid foundation for improving normal students' teaching literacy and serving the society.

C. *Optimize the Structure of Teaching Elements*

Based on the OBE concept and referring to the requirements of employers, it is emphasized that the development of normal students' teaching literacy is not what teachers teach, but that normal students with different learning abilities will improve their PCK and practical PCK in different time and through different ways and ways, so as to meet the needs of economic and social development.

(1) Strengthen the learning and teaching of professional compulsory courses, highlight the "results" of the teaching process rather than its input, especially emphasize the research teaching mode rather than the indoctrination teaching mode, strengthen the learning of practical knowledge, pay attention to the improvement of discipline literacy and the development of personalized literacy.

(2) Optimize discipline education courses and discipline professional quality, pay attention to the accumulation process of discipline teaching knowledge, lead students to improve education and teaching skills, improve education and teaching quality, psychological quality, language expression ability and organization and coordination ability, timely grasp everyone's goals, foundation and process, innovate and reflect on the accumulation of teaching knowledge, carry out teaching design and implement classroom teaching, And evaluate the teaching effect.

(3) Highlight the value of elective courses, formulate different teaching plans according to the needs of students, provide different learning opportunities according to different requirements, and improve the "tacit" teaching quality.

(4) Grasp the connotation of humanistic spirit, develop educational feelings, highlight the humanity of general education curriculum and improve educational ideas.

D. *Strengthen Teachers' Professional Skills*

Promote the practice oriented curriculum reform of subject education, strengthen the construction of teachers' professional skills platform, and improve the ability of normal students in teaching design, classroom organization and education. Based on practice, expert guidance and thinking about the experience of others, implement the development strategy of "professional guidance + questioning and exploration + expansion and innovation + evaluation and reflection", discuss or discuss the special teaching design, adjust, accumulate and reorganize the "schema" of teaching knowledge, and improve the teaching ability, so as to improve the teaching knowledge and teaching quality of normal students.

E. *Development Evaluation Quality Standards*

Evaluation is a teaching evaluation based on OBE concept, It focuses on the development of normal students' subject teaching literacy (psychological quality, professional quality, subject teaching literacy, language expression, organization and coordination ability), rather than on the teaching content, learning time and learning methods. It adopts multiple and echelon evaluation standards, and the evaluation emphasizes internalization into the "depths of the soul" of normal students Teachers' professional skills and personal teacher literacy development do not emphasize the comparison between students. According to the degree to which each normal student can meet the educational requirements, give different evaluation grades, carry out targeted evaluation, analyze and evaluate the "works" created by normal students, so as to investigate their mastery of subject knowledge and teaching skills, observe and analyze students' performance in the "task situation", and then evaluate students' teaching problem-solving ability, normal monitoring is organically combined with regular assessment, timely evaluation, timely feedback and continuous improvement.

II. DEVELOPMENT CONCEPT OF NORMAL STUDENTS' TEACHING LITERACY

A. *Professional Guidance*

Under the guidance of "expert guidance", understand mathematics and mathematics teaching, and learn mathematics ideas and methods, learning advanced educational concepts such as the high view of curriculum design, the high level of textbook processing and the refinement of teaching strategies of teaching experts (online high-quality courses, videos, etc.). Under the concept of "imitation", study how to understand the

compilation intention of teaching materials, perceive the problem situation, construct the problem query, design the teaching objectives, integrate the content of teaching materials, design the teaching methods, understand the students' original knowledge and experience, arrange the teaching process and predict the teaching effect from the perspective of mathematics and according to the educational concept of mathematics curriculum standards, compare the differences you understand for the topic, then reflect, analyze, discuss, find problems, improve teaching design, group discussion, understand the process of classroom teaching, doubts and difficulties in teaching, feel the connotation of practical PCK, and realize the construction and reconstruction of your own PCK.

B. *Questioning and Exploration*

Scientifically arrange the teaching methods and methods, determine and deal with the key and difficult points of teaching, reasonably design the process of mathematics teaching, optimize the combination of teaching media, design of teaching environment, evaluation of teaching effect, etc., realize the reconstruction of teaching knowledge structure, continuously enrich and improve its internal professional structure, and develop discipline teaching literacy by "experience" acquisition and "dialogue", represent with subject teaching language, improve their practical teaching knowledge in participation, communication and interaction, find out deficiencies, so as to reflect a deeper understanding of teaching materials, make teachers' own teaching design more suitable for students [4], organize learning community, and try to show the process of mathematicians discovering mathematical knowledge, Implement the teaching strategy of "problem → conjecture → verification (proof) → application → expansion" as the core, select the methods and technical operation principles to effectively solve teaching problems, and effectively reduce the acceptance difficulty of students [4] , form teaching plan, reflect and generate practical knowledge, evaluate learning process, teaching case study, reflective teaching and teaching design, and develop discipline teaching literacy.

C. *Expansion and Innovation*

Examine, reflect and analyze the problems in teaching practice from the perspective of research, understand the growth point of students' knowledge learning and the connection point between various knowledge, build a cognitive bridge between students and mathematical knowledge, realize the transformation of mathematical "symbol" to "entity" knowledge suitable for students' cognitive characteristics, and promote students' mathematization, promote students to explore problems and understand knowledge. Through communication, we can feel the teaching situation, fully grasp the teaching links, share the resources of teaching design and everyone's experience, express and speak out our personal teaching practice and understanding of the taught mathematics content, expose our own imperceptible shortcomings, see the shining points of others in teaching, investigate others' methods and views, and determine the strengths and weaknesses of each method, be able to listen to and think about other people's views, carry out critical thinking, benefit from other people's different views, grow in reflection, improve teaching efficiency, learn from and tolerate different views, and form a personalized teaching design, so as to optimize teaching design and enrich and develop their own teaching literacy.

D. *Evaluation and Reflection*

What kind of subject teaching skills students learn is largely related to teachers' understanding of mathematics

subject knowledge and how to show the generation and development process of students' mathematics knowledge. Gradually understand the value of teaching design and the value of this behavior to students' accumulated teaching literacy, so as to make a deeper understanding of teaching knowledge The organizational structure is more systematic, so that teachers have common experience and experience. Therefore, compare their own differences, practice and discuss the specific teaching contents repeatedly. Each practice behavior is a process of frank communication or debate with peers and self-innovation, feel new teaching behavior, understand, form and develop their own new teaching knowledge.

III. IMPLEMENTATION STRATEGIES OF TEACHERS' LITERACY DEVELOPMENT OF NORMAL STUDENTS

The development process of normal students' subject teaching literacy is divided into different stages, and the learning objectives of each stage are determined. Through the practice of "lesson learning, case discussion, experience polishing, practice exchange, sharpening research and thinking, and practicing to achieve a long future", it is gradually accumulated, experienced and recalled, and improved over and over again, gradually forming the interpretation of curriculum standards, curriculum understanding, textbook processing effective grasp of teaching key points, communication between teachers and students, difficulties and depth, and form their own teaching experience. Therefore, the reflection, accumulation and improvement of teaching experience and teaching experience are the basis and conditions for the formation of practical teaching knowledge, and then carry out selective reference and critical correction in combination with their own teaching design, so as to continuously transform and spiral the theoretical PCK, and construct the strategy of improving practical PCK suitable for their own characteristics in continuous exploration.

A. *Classroom Example Learning*

Choose to watch the videos of excellent teachers, carry out observation and discussion of classes and class examples, reflect on the connotation and value of subject knowledge, relevant educational and psychological theories and subject teaching knowledge, feel the characteristics of subject teaching knowledge contained in classroom teaching behavior, draw on the excellent experience of experts, write teaching design, and continuously accumulate and improve teaching knowledge in practice, promote the knowledge literacy of practical teaching.

B. *Case Study*

In the process of case study, understand the curriculum standards and students, preset teaching objectives, grasp the characteristics and properties of teaching materials as a whole, study the connotation and application of teaching materials, enhance the ability of analysis, induction and generalization based on observation and thinking, and learn to analyze the world with mathematical thinking methods, such as studying the frequency distribution histogram of 100 product sizes, the frequency distribution histogram of 200 product sizes. Guess: the distribution of frequency distribution histogram when the sample size increases infinitely? Use multimedia to demonstrate the change of frequency histogram, find the law of graphics, explore the mathematical knowledge, develop students' logical reasoning ability, experience the intuitive thought of mathematics, empiricism, systematize and regularize the subject teaching quality, and summarize, reflect and improve their own experience.

C. *Experience Grinding*

Based on the case study, closely connect the teaching content, teaching objectives, teaching means and teaching problem diagnosis, analyze and discuss, pay attention to the status and connection of the teaching material content, and pay attention to the logic of the teaching content, from the cultural background elements of mathematical knowledge, life knowledge, the essence of mathematical thought method, mathematical application, the treatment and theoretical basis of educational form make a more comprehensive analysis on the more and less classroom teaching content, the difficulty and ease, the choice and addition of subject cases or exercises [5]. According to the teaching content and the needs of students' thinking development, understand the law of students' physical and mental development, accurately grasp students' original knowledge and experience, and understand the teaching focus on the basis of understanding the teaching of core concepts, analyze the existing conditions and what new conditions are needed to achieve the goal, so as to make teaching problem diagnosis, detect the goal and evaluate the learning results. For example, based on the problem situation, let the students observe and think, list four relational expressions: (1) $f(x) = -100x^2 + 1200x + 12000$; (2) $f(x) = \pi x^2 - \pi$; (3) $f(x) = x^2 + 4x$; (4) $f(x) = \pi 20x^2$, and guide the students to observe, explore and think. The commonness of these four functional expressions leads to the concept of quadratic function $f(x) = ax^2 + bx + c, a \neq 0$.

D. *Practice and Communication*

Explore the degree of achievement of curriculum objectives, the rationality of teaching methods and the predictability of students' level in action learning, examine, reflect, analyze and solve their own problems in teaching practice from the perspective of research, put forward improvement solutions for existing problems, refine, expand, summarize and sublimate teaching experience, and improve the level of teaching design. Design a step-by-step inquiry process. Through observation, hands-on measurement, thinking and communication, students can get the parallel equipotential angle of two straight lines from the accumulation of experience, which is related to the existing experience of "equal equipotential angle and equal opposite vertex angle", so that the original experience can be reorganized and the link between new and old knowledge can be generated, Construct a new cognitive structure, the two straight lines are parallel and the internal staggered angle is equal, so that students can experience the process of independently discovering and forming mathematical concepts from different examples of similar things, form a certain logical reasoning ability, selectively apply experience to another kind of situation, and promote students' in-depth understanding and flexible transfer.

E. *Research and Thinking*

Role play, lesson example polishing, "micro class" operation and practical operation make teaching design a "micro teaching resource environment" with distinct theme, research, comprehensive and compact structure composed of teaching preset, classroom teaching resources, teaching reflection, student feedback and expert comments. Through the process of modifying and reorganizing the design, discussing and verifying the feasibility, negating the scheme, designing the new scheme, implementing the new scheme and revising the new scheme, normal students can estimate the possible problems of students, predict the learning situation of students at different levels, make adjustments in the teaching situation, and put forward solutions to the existing problems, provide students with reasonable explanations of knowledge, help them remember on the basis of

understanding, make adjustments and changes at any time according to the actual situation, re compile the teaching design, immediately revise, change, enrich and improve their own curriculum design, think about the integration of their own teaching design and practical PCK, and reflect on the feasibility and scientific of teaching design, and further try in microteaching, and then continue to modify to form a more perfect lesson example, discuss and exchange the experience gained and its experience-based, purposeful and focused group reflection, promote the reorganization, accumulation and improvement of teachers' PCK and practical knowledge, and improve their own teaching literacy. For example, age, the teacher said: when I was your age, you were only 2 years old. The student said: if I were as old as you, you would be 44 years old. What are the ages of teachers and students this year? Through role play, the key to the problem is found through analysis, "if the teacher is years old this year and the student is years old this year, the age difference will remain unchanged".

F. *Practice and Go Far*

On the basis of personal original teaching experience, study the curriculum standard, deeply excavate the implicit mathematics curriculum resources, grasp the curriculum system, implement the status and function of the curriculum content, and be familiar with the system, structure and stage of the knowledge plate. For example, in the study of the addition rule of rational numbers, start with the familiar life examples of students, know what students already know about the addition law of rational numbers, what content is easy, what content is difficult, what typical forms of understanding, what confusion students may have about the law of addition with different signs, and what typical misunderstandings they have. Let students get the rational number addition rule through induction and reasoning, and carry out classified operation exercises, so that students can experience the formation of rational number addition, summarize the rational number addition rule, and achieve the teaching goal of the subject. Teachers always lead students to learn independently, communicate and help each other, realize the learning of high-level thinking abilities such as "tacit knowledge" and "tacit knowledge", and also contribute to the accumulation and improvement of practical PCK.

IV. DISCUSSION AND EXPERIENCE

Based on the OBE concept, with the purpose of basic education and the needs of economic and social development, the training objectives obey the social needs, the curriculum system and curriculum teaching should serve the training objectives, and the resource allocation should be guided by the requirements of serving the society and the achievement of the training objectives. By carrying out practical activities such as "professional guidance + questioning and exploration + expansion and innovation + evaluation and reflection", the strategy of "lesson learning, case discussion, experience polishing, practical exchange, sharpening research and thinking, and pursuing the future" has been formed. The development of teachers' literacy of normal students is generated, developed and improved through their own practice on the basis of original teaching knowledge, experience, psychological representation and belief, and determines their teaching effect in teaching practice. Reflection, experience, display and exchange of classroom teaching design is not only a meaningful thinking when using mathematical education theoretical knowledge to solve the problems encountered in mathematics teaching practice, but also a teaching experience, understanding and perception of practical teaching knowledge. It is also a process of solving the problems and puzzles existing in mathematics teaching, and more a process of accumulating teaching quality.

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AUTHOR'S PROFILE

First Author
Li Sun, was born in October, 1964, Tai'an, Shandong Province. He is an associate professor at Taishan University. He mainly engaged in mathematics teaching theory research.

Second Author
Liang Fang, is a professor at Taishan University. He obtained his PhD from Shanghai Jiaotong University in June, 2010. His research interests are in the areas of cone optimizations, numerical analysis, and complementarity problems.

Third Author
Lu Liu, was born in May 1994, Zaozhuang, Shandong Province. She is a teaching assistant at Taishan University. She mainly engaged in mathematics curriculum and teaching theory research.