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Research on the Path of Improving the Teaching Literacy in University Mathematics Normal Students

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Abstract: *Teachers are the key to the success of school education. Teaching literacy is an important guarantee for teachers' level. Therefore, as mathematics normal students who are about to take up the post of teacher, it is necessary to improve their teaching literacy. This paper analyzes the problems in the cultivation of teaching literacy in mathematics normal students from four aspects. These four aspects are moral literacy, cultural knowledge literacy, information literacy and educational practice literacy. Finally, the strategies and ways to solve the problems in the cultivation of teaching literacy in these four aspects are put forward. The author hopes that the proposed teaching literacy training strategy can be helpful to the training of mathematics normal students.*

Keywords: *teaching literacy; university mathematics normal students; the dilemma of training; Cultivation path*

1. Introduction

Education as the cornerstone of a nation's progress, necessitating a prioritized focus on the training of teachers. By recognizing the significance of teacher development before anything else, we pave the way for a robust education system, contributing to the strength of our country and the well-being of its people. In the 21st century, China has introduced the concept of subject literacy, which has elevated the expectations for mathematics teachers' classroom instruction. Consequently, there is a pressing need to enhance the teaching literacy of mathematics educators to meet these heightened standards.

At present, a consensus on the definition of teaching literacy remains elusive in China and other countries. However, most scholars converge on the idea that teaching literacy encompasses two essential dimensions: knowledge and ability[1][2]. Upon careful examination and analysis, the author identifies three primary aspects comprising the essence of teaching literacy. First, teachers should possess a comprehensive understanding of the theoretical knowledge within their discipline, remaining attuned to its developmental trends and latest advancements. Second, teachers should demonstrate the capacity and cultural refinement required for effective educational practices. Third, teachers should exhibit a diverse range of teaching interests and skills[3].

2. Problems faced by the cultivation of teaching literacy in mathematics normal students

Mathematics teaching literacy is different from subject literacy. Mathematics subject literacy refers to the literacy of mathematics teachers' subject knowledge level. Mathematics teaching literacy is the embodiment of a mathematics teacher's comprehensive literacy, it is more difficult to cultivate than the literacy of mathematics. This paper will make an in-depth analysis of the cultivation dilemma from four aspects: moral literacy, cultural knowledge literacy, information literacy and educational practice literacy. The analysis diagram of mathematics teaching literacy dilemma is shown in Figure 1.

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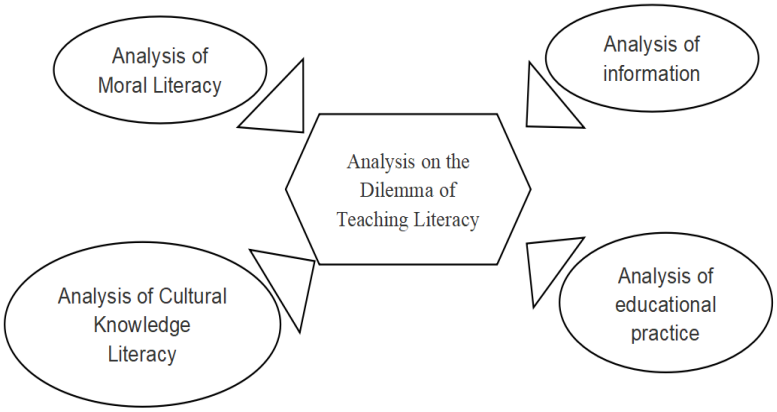

Figure 1: Predicament analysis chart of mathematics teaching literacy

2.1 The problem of poor moral literacy

At present, the cultivation of teaching literacy in mathematics normal students is mainly carried out around mathematics subjects, and lack knowledge of other subjects[4]. This situation will make the training of mathematics normal students rely too much on the training scheme and teaching syllabus of mathematics specialty. This is not conducive to the integration and exchange of disciplines, but also to the cultivation of moral literacy. The cultivation of teaching literacy of mathematics normal students mainly focuses on two aspects: one is the cultivation of mathematics subject knowledge, and the other is the cultivation of teaching skills. Disregarding the importance of moral literacy in mathematics teaching practices accentuates the overtly instrumental nature of the educational process. Most mathematics normal students regard teachers as a profession or a means of "making a living", and have no sense of responsibility and mission at all. At present, mathematics normal students learn or come into contact with theoretical knowledge. They lack sufficient understanding of innovation and social development and changes in the current era. In the process of college education, Many mathematics students, considered to be within the norm, often struggle to recognize the diverse connections between their academic learning and real-world applications. Responsibility has not become an important cognition of mathematics normal students. In this case, most mathematics normal students failed to form good thinking habits and value orientation. In order to response to the current high standard of mathematics reform, mathematics normal students can only improve themselves by constantly adjusting themselves, making reasonable plans and studying hard. Only by making adjustments in this way we can form a lofty teacher literacy with responsibility, responsibility and morality.

2.2 Lack of cultural knowledge

With the continuous development of society, future mathematical teachers need to have all kinds of literacy and abilities. Therefore, mathematics normal students need to have good aesthetic ability and cultural literacy. With these abilities and literacy, we can better demonstrate our personal skills and solve various complicated problems. However, at present, in the process of training mathematics normal students in China, mathematics knowledge is still the main subject. In addition to mathematics knowledge, they also study pedagogy, psychology, mathematics teaching methods and other professional knowledge closely related to mathematics teaching. Although mathematics normal students have learned a lot of mathematics professional knowledge, but they lack a lot of humanities knowledge. This indicates that the cultural knowledge literacy of average mathematics students is not yet fully developed.[5] While current universities have successfully established a robust professional knowledge system for the education of mathematics students, there are still areas for potential enhancement. However, the precipitation and integration of cultural literacy is not enough, and mathematics normal students fail to form good ideological quality and behavior habits. At the same time, this training system makes it impossible for mathematics normal students to understand the lofty mission spirit of teachers' profession more intuitively and effectively. This training method will affect the growth and development of mathematics normal students in their future educational practice. The professional knowledge, teaching skills and personal ideological realm of mathematics normal students will also be greatly affected.

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2.3 Information literacy and innovative ideas have not been effectively integrated

In the era of artificial intelligence, information literacy is becoming more and more important for mathematics teachers' teaching practice and career development.[6] Mathematics normal students master teaching practice skills through training programs and learning knowledge from books. Such training and learning methods are not conducive to the learning and development of mathematics normal students.

Since the 20th century, with the continuous expansion of university enrollment, the number of mathematics normal students has been increasing year by year. This will make the internship opportunities of mathematics normal students less and less. Many mathematics normal students have no chance to experience the real teaching experience from the teaching environment. In the current teaching practice of normal university, most mathematics normal students lack sufficient understanding of MOOC teaching and courseware making technology[7]. They are not very skilled in many math application software. And their information technology education is very limited. Therefore, they have some defects in using internet technology to improve teaching methods and obtain learning materials. Mathematics normal students need continuous improvement, and they still lack the necessary innovative spirit. They lack initiative and reflection in practical teaching, which makes it difficult for them to gain a firm foothold in the complicated mathematics classroom in the future. At present, the cultivation of mathematics normal students mainly focuses on the teaching and practice of mathematics. This has not fully expanded the breadth and depth of their study. This has affected the exploration and development of mathematics normal students. In the environment of artificial intelligence education, mathematics normal students should be proficient in operating all kinds of software equipment and hardware equipment related to teaching. They should use software equipment and hardware equipment to teach mathematics knowledge and guide students to learn. Only in this way can we improve the level of effective integration of personal innovation consciousness and information literacy of mathematics normal students.

2.4 Lack of practical experience in education

Educational practice is one of the necessary links in the training of mathematics normal students. Theoretical courses have a good guiding role in the cultivation of mathematics normal students, but they can't completely copy the theory in concrete operation[8]. Nowadays, Chinese universities have been influenced by the traditional education and training mode for a long time, and the educational practice has never been valued by universities. In the four-year normal education, the teaching practice time of mathematics normal students is very few, and the cultivation of educational practice in many universities is a mere formality. In this way, the real teaching time of each mathematics normal student is very small. In some developed countries, the proportion of practice time of mathematics normal students is very high. For example, the United States, Britain and France are their typical representatives. As an economic and educational power in Asia, Singapore also attaches great importance to the education of mathematics normal students. They spend a lot of time getting students to take part in educational practice. They spend a lot of time getting students to take part in educational practice. This makes the teaching ability of mathematics normal students in China relatively weak. This makes them unable to adapt to the requirements of modern education and teaching quickly in the actual mathematics teaching after graduation.

3. Approaches and methods to cultivate the teaching quality of mathematics normal students

3.1 Normal universities build excellent environment and produce excellent teachers' morality

An excellent university does not lie in having many beautiful teaching environments and high-end teaching buildings. But that there are many excellent masters and energetic students. The primary goal of a university is to cultivate outstanding talents, and the primary goal of cultivating mathematics normal students is to cultivate excellent teachers' morality. For the cultivation of excellent teachers' morality, the author's suggestions are as follows. First of all, universities should respect mathematics normal students and create excellent teaching environment and humanistic environment for them. We should stimulate the inner motivation of mathematics normal students, and make them form a good concept of teacher identity in the process of growth and learning. Only in this way mathematics normal students can establish lofty career ideals and beliefs. Secondly, universities should guide mathematics normal students to form excellent teachers' morality. This makes them regard teaching and educating

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people as an important goal to realize the value of life. Mathematics normal students should take the teacher's identity as the center and future development reasonably. They will explore their own teaching methods. In this way, universities can realize the inner awakening of teachers' morality consciousness of mathematics normal students. Finally, the university should make mathematics normal students have a correct attitude towards teacher status. In order to make mathematics normal students love education from the heart, it is necessary to cultivate the correct motivation of mathematics normal students for teachers' career. Therefore, in the cultivation of mathematics normal students, we should not only pay attention to the cultivation of their knowledge and skills, but also pay attention to the cultivation of their teachers' morality. By guiding them to realize the importance of teachers' ethics, universities enable them to integrate their personal ethics into mathematics education and teaching. In this way, the internal generation of excellent teachers' morality of mathematics normal students can be realized.

3.2 Adjusting the Course Structure and Improving Cultural Literacy

Under the background of today's times, universities should prioritize the cultivation of cultural literacy in mathematics students. By supporting and arranging courses rich in Chinese excellent cultural ideas and allusions, they can have good cultural accomplishment and further improve their personal cultural accomplishment[9]. Universities should run cultural literacy through all aspects of the educational practice of mathematics normal students, they always insist that cultural literacy is one of the important literacy of mathematics normal students' study and practice. To this end, the author believes that colleges and universities in China need to do the following. Firstly, we should set up a reasonable curriculum system and optimize the teaching content of mathematics education. In addition to offering professional courses such as mathematical analysis, advanced algebra, analytic geometry, ordinary differential equations, probability statistics, complex variable function, modern algebra, etc. we should also arrange educational and teaching-related courses such as educational foundation, psychological foundation, curriculum theory, teaching theory and educational psychology, and at the same time expand their cultural knowledge courses. Universities should formulate a series of reasonable elective courses for mathematics normal students according to their interests and hobbies, and cultivate their good cultural literacy through appropriate encouragement and guidance. Secondly, we should attach importance to the construction and development of multi-disciplines in combination with the current background of "interdisciplinary", "interdisciplinary" and "interdisciplinary". On the basis of perfecting the knowledge system of mathematics specialty of mathematics normal students, we should actively offer education and teaching courses related to the traditional virtues and cultural education of the Chinese nation. For example, optional courses such as China traditional culture, mathematics games and culture can be offered, and the humanistic quality of mathematics normal students can be improved by promoting the combination of mathematics professional teaching and diversified cultural and educational courses. Thirdly, we should rebuild the curriculum system of mathematics normal students based on cultural reflection. In order to cultivate the reflective ability of mathematics normal students, we should reasonably set up philosophical courses, such as western philosophy, China philosophy, logic, ethics, epistemology and other elective courses. By cultivating the critical thinking and exploration spirit of mathematics normal students, they can realize independent exploration and reflection in the real teaching environment, thus forming good thinking habits and generating profound humanistic quality.

3.3 Improve the training mechanism and promote the integration of information technology and innovative ideas

With the rapid development of artificial intelligence today, it has become one of the necessary qualities for future math teachers to skillfully use modern teaching tools and equipment platforms[10]. The knowledge content and thinking mode of mathematics normal students should meet the requirements of the development of modern society[11]. Therefore, in the process of cultivating information literacy and innovative ideas of mathematics normal students, it is very necessary to cultivate them to apply modern teaching methods and technologies to mathematics education and teaching. First of all, it is necessary to build a practical platform for mathematics normal students, so that their teaching skills can be promoted and developed in practice. The traditional training scheme of mathematics normal students is mostly based on the closed and simulated teaching environment, which makes it difficult for them to experience the positive effects and functions brought by the real teaching environment. By providing a systematic and open teaching platform for mathematics normal students, universities make mathematics normal students participate in real teaching practice, thus forming good teaching skills and professional quality. Secondly, it is necessary to improve the evaluation system of

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mathematics normal students, pay attention to the innovative education of mathematics normal students, and encourage them to actively participate in innovative education, so that the innovative ideas of mathematics normal students can be transformed from outside to inside. Universities should let mathematics normal students form a good sense of innovation in the process of practical exploration and continuous reflection, and constantly discover and solve problems in practical exploration, and finally form a very perfect mechanism for cultivating innovative literacy. Finally, in the artificial intelligence environment, efficient teaching activities require mathematics normal students to master and use all kinds of teaching software skillfully. Therefore, universities should attach importance to cultivating the ability of mathematics normal students to skillfully use all kinds of new software and new teaching equipment, and let mathematics normal students realize the important role of artificial intelligence technology in mathematics education and teaching through the cultivation of the ability to use new software and new equipment. It enables mathematics normal students to form a skilled ability to use artificial intelligence education technology.

Nowadays, the cultivation of "the core quality of mathematics" has become a very hot topic in mathematics teaching in primary and secondary schools[12]. At the same time, "mathematics core literacy" is also an important theoretical basis for curriculum development and mathematics teachers' teaching. Therefore, improving the education of mathematics teachers has become an important factor in cultivating students' mathematics core literacy. The future development prospect of teachers and the training effect of mathematics core literacy of primary and middle school students are directly determined by the training situation of mathematics normal students' teaching literacy. Therefore, how to make mathematics normal students form good teaching literacy is the key to the success of future education. Finally, it is imperative to improve the training system of mathematics normal students' teaching literacy and comprehensively promote the reform of mathematics normal students' education system.

3.4 Increase the hours of educational practice and strengthen the cultivation of educational practice links

Only by integrating theory with practice we can achieve the best learning effect. In the training of mathematics normal students, we should not only pay attention to theory but despise educational practice, which has the same important position as theory. Therefore, mathematics normal students should often participate in mathematics education and teaching activities in primary and secondary schools. We should know more about primary and secondary education. We should master the psychological characteristics and learning state of middle school students, so as to lay a solid foundation for them to quickly enter the state of mathematics education in primary and secondary schools after graduation. In order to better cultivate the educational practice ability of mathematics normal students, universities should strengthen the contact with primary and secondary schools and conduct strict examination on educational practice. Universities should combine the performance of mathematics normal students during their educational practice with their files, and should not let the educational practice activities exist in name only, but actually implement them. Only in this way can mathematics normal students attach importance to educational practice and make their educational practice achieve excellent results. The training system of mathematics normal students in some developed countries in the west has achieved very obvious results. From the training results, we can prove a conclusion, that is, flexible organizational forms, long-term and systematic educational practice activities. It is not only the practical basis for the development of mathematics normal students, but also an effective way to improve the education and teaching level of mathematics normal students. The training of mathematics normal students in China should fully draw lessons from the excellent educational practice experience of developed countries, so that mathematics normal students can achieve the real unity of theory and practice in the training of teacher education, and provide a steady stream of excellent education and teaching talents for the society.

4. Conclusion

Mathematics teachers' teaching quality is the decisive factor to develop high-quality mathematics education. The growth and development of mathematics teachers is the fundamental guarantee for the effective operation of mathematics education. Therefore, teachers' growth must be examined from the strategic height, national interests and national prosperity[13]. As a member of the future teachers, the growth of mathematics normal students and the cultivation of mathematics teaching literacy are particularly important. Only by attaching importance to the cultivation of mathematics teaching literacy

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can universities better promote their growth.

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