

Reform of Pre-service Teacher Education Based on the Revitalization of Rural Teachers in China

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Abstract: To promote the revitalization of rural education in China, we need to correctly understand the complexity and the requirements for modern teachers of rural education. At present, pre-service teacher education in universities has not been changed from the traditional mode. The problem of teachers who "Can't dive in, can't stay, miss-qualified" is still prominent. In order to establish the connection between economic development and talent cultivation in rural revitalization, we focus our research on the reform of curriculum content, teaching form and educational field of pre-service teacher education, integrate the pre-service teacher training process into rural reality, highly integrate the curriculum with rural natural and humanistic resources, emphasize the cultivation of teachers' educational emotion and educational skills, and explore a new way to cultivate teachers in rural areas in western China.

Keywords: Rural Revitalization, Ethnic Education, Teacher Education, Curriculum Reform, Higher Education

1. Introduction

Rural China is relatively backward when compared to urban areas in terms of education, economy, and technology and constitutes a weak part of Chinese efforts to build a well-off society. This year is the last year of the Action Plan for the Revitalization of Teacher Education (2018-2022) and Opinions on the Implementation of the Excellence in Teacher Training Programme 2.0. In such a key period, it is essential to effectively consolidate the victories achieved in the fight against poverty, implement decisions of the Communist Party of China on vigorously revitalizing teacher education, and put into practice the innovative, collaborative, green, open, and shared teacher education concept, which requires universities to keep the quality of pre-service teachers at the source. [1] During the stage of poverty alleviation, the basic, pioneering, and continuous character of education are vital to poverty eradication. At the stage of rural revitalization, it is important to understand the pioneering role that rural education revitalization plays in the overall revitalization of the countryside, to explore the value and cultural choices of rural education in nurturing people, and to respond to the ability requirements of future talents in the countryside

regarding innovation, culture and the transformation of society. Consequently, we must create a group of excellent rural teachers who can go down, stay, and be employed. [2]

The key to the revitalization of rural areas lies in the revitalization of rural education, and the key to the revitalization of rural education lies in the revitalization of rural teachers. Teachers in rural areas are a special group within the teaching profession, and their work is more demanding, complex, and varied than teachers in urban areas. China has released the Action Plan for the Revitalization of Teacher Education (2018-2022) and the Plan for the Implementation of the Excellence in Teacher Training Programme 2.0. They both call for reforms to liberate teacher education from the closed education model and open up the school, thus liberating teacher education from the old three disciplines – education, psychology, and subject theory. It is proposed to liberate teacher education from the old three disciplines, deepen the teacher training mechanism, reform curriculum, teaching, teachers, and quality assessment in order to produce more good teachers with ideals and beliefs, moral sentiments, solid knowledge, and a loving heart. [3]

Teacher education itself takes place within a cultural context. All of the cultural choices, cultural practices, and cultural values incorporated into teacher education programs operate within a specific cultural context and ultimately benefit the rural teachers designated for those programs. It is the purpose of rural teacher education programs to nurture teachers in such a way that they will be equipped and qualified to create and transmit culture. The former is to gain progress in the lives of individual rural teachers through teacher education programs, as well as to explain the key meaning and pathway of nurturing new types of rural teachers. The latter is the achievement of educational goals and the cultivation of an educational culture through the training of outstanding rural teachers, the shaping of a new culture, and the advancement of culture through the practice of the curriculum. This requirement is based on the curriculum. The revitalization of rural education is based on the long-established educational culture and the endogenous development of educational quality based on the newly completed educational achievements in poverty alleviation. Rural education must understand the complexity, breadth, and diversity of the countryside and define criteria for selecting curriculum culture, curriculum objectives, and curriculum contents under the requirements of rural revitalization so as to create a new curriculum culture and nurture a new round of development in the countryside. The promotion of all these actions and the realization of the goals requires the training of excellent rural teachers as the basis. [4] The main battleground for training future rural teachers is universities, which need to take the initiative to improve the quality of talent training and return to the living world of the countryside in the education of rural teachers and pre-service teachers. Pre-service teacher education will cultivate excellent rural teachers and revitalize rural education through the selection of course content based on the original theme of rural education, the organization of course content based on rural education issues, and the development of course resources based on the rich natural and humanistic resources of rural areas.

2. Teachers Needed to Revitalize Rural Education

2.1. *Understanding the Dichotomy Between Poverty and Education*

As the headmaster of a 12-year school in Shenzhen once told me, although their newly recruited teachers were highly educated and strong in general, having graduated from prestigious schools, they were not adequately prepared for their careers and their training and professional development were heavy and difficult. Inter-professional teachers often see teaching as a 'career' to earn a living, but the long-term, complex and difficult nature of education requires that teachers have an in-depth understanding of the impact education has on humanity and society as a whole and that they make teaching a lifelong career to strive for. Education

requires a deep understanding of its impact on humanity and society as a whole, as well as the ability to make teaching and education a lifetime career. [5]

Rural teachers must also understand the essential role of rural education in interrupting the intergenerational transmission of poverty and be able to accurately judge the underlying causes of the contradiction between the abundant natural and human resources in rural areas and the lagging economic, technological, and educational levels. In orienting pre-service teacher training, universities and majors should focus on curriculum construction, make cultural and value judgments about the dichotomous combination of modern education and rural revitalization, and make reasonable choices. [6] Through the curriculum, it is necessary to understand that rural education is an important part of the modern education system. Its special characteristic lies in the fact that rural education takes place in the rural cultural world, as its fundamental task is to improve the overall quality of the rural population, which in turn contributes to the social and economic progress of the countryside. Furthermore, it is also important to acknowledge that the lag in rural society, economy, and education is a result of structural tensions in the socialization process, which has led to an imbalance in development, thus preventing the rich natural and human resources of the countryside from being transformed into an economy, consequently resulting in insufficient development.

2.2. *Understanding the Rural Cultural Perspective*

As social interaction increases, rural culture is constantly enriched, renewed, and changed. Rural culture is becoming increasingly complex, and rural cultural conflicts are intensifying. In such a context, future rural teachers need to reconstruct the concept of rural culture and prepare for the revitalization of rural culture. Culture has been widely discussed, but in the end, it has three characteristics. First, it is artificial and acquired. It is the product of the material and spiritual activities of human beings over a long period of productive life. Second, the diversity and commonality of cultures—the different ways of production and life that give birth to different cultures from country to country and even from region to region. Third, the cumulative and systematic nature of culture—culture is a social wealth that has been accumulated over time and is inseparable from history [7].

Based on these characteristics, to reshape pre-service teachers' view of rural culture, it is necessary to integrate the diversity and justice of rural culture into the curriculum of pre-service teacher education in addition to academic standards. Additionally, this is intended to help pre-service teachers release misconceptions, worries, and fears about rural education through appropriate curriculum content and teaching practices in order for them to gain a better understanding of rural culture and rural education. In addition, universities need to provide a variety of courses and to teach to help pre-service teachers understand the multidimensional and dynamic nature of rural culture. To develop an endogenous view of quality development in rural

education, it is important to understand how rural culture affects students' motivation and learning outcomes in terms of behavioral habits, interpersonal interactions, and developmental motivation.

2.3. A Multi-directional View of Rural Students

The integration of rural multi-industries promoted by the Internet+ and agriculture+ has significantly changed the original industry, knowledge, technology, and talent structure of the countryside, but the potential of education based on students' development has not been fully realized. The school curriculum is not closely connected to the rural reality [8]. There is not enough attention paid by teachers to students' ability to recognize, understand and solve local social problems. They are not aware of the demand for talent in the multi-trade mode under rural revitalization, neglecting the cultivation of knowledge and skills for the comprehensive development of rural students. In rural areas, there are abundant natural and human resources, and students have accumulated a wealth of knowledge and experience about the harmonious coexistence of man and nature, man and society, and man and man, all of which can facilitate students' multi-directional development. The richness and diversity of the resources provide an extremely wide scope for the improvement of school curricula, teachers, and teaching methods, and are rich educational resources, but schools and teachers fail to translate the rural curriculum in their training sessions. When universities train pre-service teachers in rural areas, they should take into account the richness and effectiveness of rural educational resources. It is important to break the stereotype that rural resources are scarce, to expand pre-service teachers' understanding of rural educational resources, combine the excavation of rural resources with superior teacher education curriculums, to guide students' development with a resource perspective, and to expand the space for diverse development of rural students.

2.4. A Rural Education Revitalization Perspective

Pre-service teachers should understand not only the requirements of the times for the revitalization of rural education in terms of policy requirements but also the possibility and feasibility of revitalizing rural education in terms of rural resources. Generally, pre-service teachers have a negative attitude towards rural education, rural children, and rural life, believing that rural life is boring, monotonous, and hard, and rural education and rural students lag behind in terms of development and academic achievement. Therefore, they are unwilling to work in rural education. Universities need to change pre-service teachers' stereotypes of cultural and linguistic differences, educational expectations, and learning motivation differences in rural education in order to change this situation. To develop a more positive attitude towards rural students and rural education, universities should also build pre-service teachers' awareness and understanding of diversity, equity, and development beyond academic standards.

3. Pre-Service Teacher Education in Higher Education: Limits and Problems

3.1. University Pre-service Teacher Education Hampered by the Demands of Teaching Excellence

Following the Opinions on the Implementation of the Teacher Excellence Training Program 2.0 (hereinafter the Opinions) in 2018, the Ministry of Education proposed that after five years, a number of high-level and distinctive teacher education institutions and teacher training programs would be run, and a new form of education and teaching centered on teacher trainees would be established. By 2035, the comprehensive quality, professionalism, and innovative ability of teacher-training students will be significantly enhanced, laying the foundation for the cultivation of backbone teachers, teachers of excellence, and educator-type teachers. Teacher excellence is cultivated in order to lay a solid foundation for teaching excellence.

Teaching excellence is a teaching philosophy that has developed along with ecological civilization and is a transcendence and critique of effective teaching. The response of teaching excellence to the times is based on two main challenges. First, the fundamental problems of industrial civilization, such as the problem of the divide between rich and poor, the problem of peace, the problem of ecological imbalance, and the problem of energy, seriously threaten humanity's survival and development. Second, with the advent of the era of economic globalization, international competition (including competition in the ranking of world universities) has become increasingly fierce, and global issues have increasingly called for global awareness, especially global ecological awareness. [9] The future international competition is bound to be the competition of talents and innovation, and the new problems that emerge along with the development of the times are no longer solved by knowledge and ability alone, and global civilization or ecological civilization can only Global civilization or ecological civilization can only rely on wisdom to deal with a wide range of fundamental, complex, profound and acute problems. In this context, the shortcomings of effective teaching and learning in pre-service teacher education classrooms, where the mission is to transfer and acquire knowledge and skills efficiently, are becoming apparent. However, for the sake of uniformity, standardization, and homogeneity of teacher education, pre-service teacher training in universities has not been liberated from the traditional model in terms of the objectives of teacher education, the curriculum requirements of teacher education in the new era, and the culture of teacher education.

3.2. Curriculum for Pre-service Teachers Based on Disciplinary Logic Hinders Constructive Learning

The content of pre-service teacher education courses has long been criticized for being outdated, not very applicable,

and disconnected from the reality of education, and the content of these courses is heavily theorized and subject oriented [10]. The curriculum of teacher education mostly presents a compartmentalized content system. The teacher education curriculum in Chinese universities is based on the disciplinary model of the former Soviet teacher training colleges and is built around the disciplinary logic of the basic education disciplines of pedagogy, psychology, and subject pedagogy to construct the content and knowledge system of teacher education courses. In the specific process of pre-service teacher education, the universities intend to realize the origins of education and pedagogy, the basic concepts of education, the schooling system, the curriculum, and teaching, the relationship between teaching and learning, and the relationship between teacher and student through the disciplinary system of pedagogy, psychology, and disciplinary pedagogy.

Under the disciplinary mindset, however, such a course is essentially difficult to achieve the predetermined objectives of the university, and most teacher-training students do not consider it particularly valuable after studying it [11]. Because the development of the discipline is based on the logic of systematic and theoretical construction, it is a system of knowledge composed of theories, concepts, principles, and rules. Pre-service teachers, on the other hand, are confronted with a dynamic, rich curriculum of linguistic, cultural, cognitive, contextual, ethical, and experiential content elements [12]. Continuing to follow the disciplinary logic established by the three main disciplines would tend to fall into a situation where the content of the curriculum is empty. At present, with the construction of new disciplines and the promotion of the rural education revitalization strategy, basic education teachers and rural teachers will be in a dynamic and evolving process of constructive learning in the teaching process, and lifelong learning will accompany rural teachers throughout their careers. The intentional, contextual, ethical, experiential, and reflective nature of teaching and learning in rural education requires teachers to look beyond the disciplinary system of pedagogy to construct learning for pre-service and in-service teachers.

3.3. Curriculum Avoiding the Logic of Rural Teacher Life and Failing to Acknowledge the Reality of Rural Education

There are many advantages to the content of modern teacher education, including scientific, systematic, and logical approaches that provide a solid foundation for the standardized and leveled training of future teachers. However, these foundational courses are not the whole story of teacher education. Colleges and universities that teach only the concepts, definitions, and theories of the basics of the subject in the pre-service teacher training process tend to develop a disconnect between knowledge and reality, and the facts of the real world of education are easily ignored. By criticizing and reflecting on the scientific world, the Phenomenologists introduced the concept of the lifeworld into philosophical discourse. They argued that modern science had lost its

meaning of life or value in life, human beings are viewed as facts and things, and empirical research has become the subject of life [13]. Husserl believes the world of life is based on values, and the world of science is based on the world of life.

In western universities, a large part of pre-service teachers come from rural and ethnic minority areas. On the one hand, we should consider pre-service teachers as human beings in their participation in the life field in the training process. On the other hand, it is important that pre-service teachers understand the possible future of the teaching profession and that they develop a multidimensional awareness, emotion, and understanding of education in multiple contexts. [14] However, the curriculum content of pre-service teacher education in universities is mostly based on abstract, symbolic, and structured disciplinary concepts, definitions, and systems based on disciplinary logic. Although there are educational internships and apprenticeships, they are only short-term observations and fail to confront the realities of education, especially rural education.

4. Guide for Action: Reforming Pre-Service Teacher Education with Real Rural Education

4.1. Integrate K-12 Teaching and Learning into Real-Life Contexts Using the Rural Principal's and Master Teacher's Studio

In the organization of pre-service teacher education programs, knowledge is undoubtedly a central issue in the whole educational process. But the knowledge based on disciplinary logic is academic knowledge. In order to produce practical teachers who can go, stay, and be used, it is necessary to focus on the cultivation of applied knowledge in the training of pre-service teachers. The project team has established a collaborative development mechanism with provincial, state, and county-level *famous headmasters' studios* and *famous teachers' studios* in various disciplines and has taken on the service function of the universities in undertaking the studios. While maintaining a systematic and logical understanding of the subject, the Principal's Studio and Master Teacher's Studio of each discipline are relied upon to conduct immediate, small-scale, and thematic training based on educational realities, teaching, subjects, and teaching problems. As a result of immediate, small-scale, thematic, and case-based teaching, pre-service teachers can internalize and practice their subject knowledge in real educational contexts, earning methods, and tools to solve educational problems in the future. Across all levels, from kindergarten to university, regular thematic educational teaching and research activities open up channels for talent development.

Four years after starting the project, the project team has completed 63 basic education teaching activities and teaching themes for pre-university teachers through the collaboration

of basic education teachers and pre-university teachers, with the development of a high-quality curriculum for basic education as the project system. In addition to 180 thematic series of fine teaching examples, including Ritual, Music, Beauty and Wisdom, and Poetry and Folklore, more than 60 micro-lessons with independent intellectual property rights have been created. More than 60 teaching cases highlighting local natural and humanistic resources have been developed in primary and secondary schools, and innovative teaching methods have been implemented through conversion and addition. Several examples, including The Beautiful Contract between Man and Nature, The Power of Seeds, and the red theme Daddy Took Me on a Long March, have won first and second prizes in provincial and statewide teaching competitions and have been recognized by all sectors. This productive model of teaching for pre-service teachers, when organized in a thematic or issue-based way, is more accessible and understandable to pre-service teachers, who find that this model of teaching and learning is enjoyable, and it facilitates a practice-oriented mindset in them.

4.2. Innovate Teaching Methods and Promoting Hybrid Classrooms with Diverse Teachers

Teachers are the foundation of education and the source of its development. As part of the Opinions of the Ministry of Education on Comprehensively Improving the Quality of Higher Education, issued in 2012, the Ministry suggested that education be modernized, oriented to the world and future-oriented, and to enhance the teaching staff at universities through the introduction of high-quality teacher resources, school-to-school collaboration, and international cooperation. As a comprehensive university in the west, this project has gathered teachers from international partner universities in the US, UK, and Italy and schools at the basic education stage in east and central China. It is to compensate for cultural factors, geographical conditions, factors endowments, historical origins, opportunities, and connections that affect the university and pre-service teacher team involved in this project. Hybrid classroom teaching is promoted through cloud classes, live teaching, online lectures, and online thematic sessions. The linked teaching model, which utilizes complementary educational resources of multiple schools, has successfully enabled the sharing of teaching resources, the formation of teacher teams, and the diversification of teaching methods. As a result of four years of practice, more than 60 classroom lessons have been offered online, 24 online thematic seminars have been held, seven online lectures have been presented by international scholars from the US, UK, Finland, and Italy, and 36 practical teaching sessions have been conducted in the second outdoor classroom, and over 40 quality lessons have been conducted by teachers of all levels.

4.3. Develop K-12 Popular Science Curriculum Based on Rural Resources for Pre-service Teacher Education

To implement the requirements of General Secretary Xi

Jinping's Three Communities awareness education and rural revitalization strategy, we will clarify the talent, technology, and education support needed for rural revitalization, as well as put rural education revitalization into practice. The basic education curriculum and teaching innovation will be used to promote education for the harmonious coexistence of humans and nature as well as humans and society. Children in rural areas can explore the diversity of natural and human resources in nature, discover the science around them, and become more aware of ecology, resources, science, innovation, and development by going into nature. Promote the revitalization of rural education and broaden the channels of regional, social, ecological, and collaborative education for primary and secondary schools, society, and parents. In collaboration with the K-12 Citizen Science program of Cornell University's Bird Lab, the project team developed a curriculum that covers natural phenomena, plant and animal resources, ecological conservation, culture, and customs. The K-12 Citizen Science Curriculum is an interdisciplinary and cross-grade team of teachers from universities, high schools, junior high schools, elementary schools, and kindergartens.

The most popular science programs are those that emphasize the relationship between students and their habitats. They are rural, outdoor-based, interactive, investigative, and experiential in nature. Starting with the habitats and natural and human resources that students inhabit in rural areas, it aims to improve students' cognitive, behavioral and emotional well-being through extensive public participation, large-scale data collection, and well-designed science practices. Create a library of science resources through multidisciplinary co-curricular teaching. Act on the participatory, interesting, and creative nature of the science curriculum. Using the teaching of various subjects in kindergartens, primary and secondary schools as a pathway to realization, develop resources for the science curriculum in kindergartens, primary and secondary schools, develop the science skills of rural students, build connections between students and the environment they inhabit and explore the educational practices of biodiversity. The DEVISE (Developing, Validating, Implementing, Situated, Evaluating, Instruments) program for pre-university teachers is a multidisciplinary approach to science literacy development. It allows pre-service university teachers to identify educational issues, learn teaching skills and enhance their passion for education by participating in real-life curriculum development and teaching in real-life educational scenarios.

4.4. Extend the Second Classroom Through the Learning in the Wild Summer Program

The key to the transformation of ethnic areas from education for poverty alleviation to rural education revitalization lies in the construction of a framework for thinking about the endogenous development of ethnic areas through education reform and innovation. In order to nurture people, it is essential to identify the values and cultural choices of rural education, as well as to pay attention to the needs of future talents in rural areas in terms of innovation, culture, and changing society [15]. Therefore, in the process

of training pre-service teachers, universities should put into practice the cultural choices, cultural practices, and cultural values of education in the specific cultural world of the countryside. Learning in the Wild's second classroom mode allows pre-service teachers to understand the complexity, breadth, and diversity of the countryside in their actual context, thus enabling them to better understand rural education's new life and mission.

Through the Learning in the Wild project, the project team, organized by Guangzhou University and the Chinese University of Hong Kong, has organized Summer in Gao Bu, Village Book House (Gao Bu), and Village Book House (Pingtan). The project team, organized by the University of Guangzhou and the Chinese University of Hong Kong, has organized Summer in Gao Bu, Village Book House (Gao Bu), Village Book House (Ping Tan), and Research on the educational functions of the village space and Outdoor Classroom Teaching on the education of left-behind children. A series of 10-day, 21-day, and 22-day joint workshops were conducted for three consecutive years in 2016, 2017, and 2018 respectively, in collaboration with Guangzhou University and Chinese University of Hong Kong, Hunan University, Guizhou University for Nationalities, and the South China University of Technology with the participation of postgraduate and undergraduate students from multiple universities. The second outdoor classroom emphasizes the development of pre-service teachers' hands-on and problem-solving skills and is based on educational reality but is above the current situation of

education, allowing pre-service teachers to explore rural resources, characteristics, problems, and the cultural psychology of the population, to make cultural judgments, aesthetics, identification, and other practices, and to think about the *Chinese standard* of rural education. This will enable them to identify the culture of rural education and to use it in their future work to resolve the many cultural disorders in the countryside and to revitalize the countryside through education.

4.5. Reform Assessment Methods and Develop Comprehensive Teaching Content-Based Assessments

The aim of the project is to train excellent teachers who can go, stay and be used in the villages in the western region. The evaluation methods and evaluation bases are designed so that there are bases and indicators for linkage and progression between each lesson and a comprehensive evaluation of the whole process. The indicators used in this study are shown in Table 1.

In addition to carrying out comprehensive assessments based on teaching content strips, open-ended, data-based, process differentiated assessments are combined with online teaching and online learning. Relying on the basic teaching status database built by the school and the data monitoring of Nails, Tencent Classroom, and Zoom online classroom, data on students' learning process is collected through multiple channels to support the diagnosis of learning conditions for on-site teaching and curriculum planning for comprehensive evaluation.

Table 1. Evaluation Indicators.

Examinations Objectives	Appraisal	Indicators	Occupied Proportion	Complete Main body	Evaluation Main body
Subjects Knowledge	Text	Writing a reading summary Each week, the topic leader suggests questions for discussion based on the unit material.	15%	Panel	Teacher
	Text Observations in the classroom	Discussion in small groups, with students evaluating the leader's questions. A representative from each group makes a presentation in the classroom. The Youth and Blue Project learning log.	25%	Personal	Teachers and students
Practical skills	Text Practice observation Practice results	Evaluation and discussion of class performance Lesson design Cultural Research Features and Innovations Collaboration in tiered groups for instructional design	30%	Panel Personal	Teachers and students
Operational and problem-solving skills	Text Microlearning	Course Papers. Demonstration lesson	30%	Personal	Teacher fellow students

5. Summary and Reflection on the Whole Process and Open Pre-Service Teacher Education with the Goal of Teaching Excellence

5.1. Develop Living Teaching Resources, Create a Teaching Culture and Build a New Ecology of Education

The living teaching resources in this project are fact-based, present, and occurring facts, both as content, method, and

means. The project's curriculum elements are based on the natural and humanistic resources of rural western areas as well as the development and practice of high-quality courses. It also builds a five-in-one curriculum ecology that integrates thinking, general studies, professionalism, practicality, and service based on the requirements of a holistic and open education mode from university to kindergarten based on biodiversity and ecological wisdom of the area where rural basic education is located. The program also includes open classes, teaching workshops, and educational reform forums for junior and senior secondary schools, primary schools, and kindergartens to create a culture of teaching and learning,

promote collaborative education, and create teaching brands for different levels of education. Emphasis is placed on rural basic education students establishing individual connections with the outside world, allowing rural students to discover the science around them through exploration and building a new ecology of rural education.

The project's methodology focuses on teacher preparation in real, ongoing situations in basic education, allowing pre-service teachers to participate in the 'living' field of the countryside, education, and culture, to make judgments about the binary combination of educational culture and rural culture, and to continuously optimize and adjust classroom teaching and learning based on teaching and learning conditions. This will enable them to optimize and adjust their classroom teaching in real-time, thereby improving their teaching skills and techniques. In terms of means, the key to training teachers who can understand the countryside, have a correct understanding of rural education, and have a lifelong commitment to rural education is to provide pre-service teachers with the opportunity and conditions to understand rural life and the current situation of rural education. At present, the knowledge presented in the subject of education in universities is far from the countryside, and because the teaching materials are outdated, they reflect the backward, dull and difficult state of the countryside. In fact, after poverty alleviation, the infrastructure, facilities, and life in the countryside have been greatly improved. Placing pre-service teacher training in the rural community is an important means of training rural teachers who can *go, stay, and be useful*.

5.2. Break Down Disciplinary Barriers and Establish Cross-District and Cross-Disciplinary Teacher Synergy for Pre-service Teacher Training

With the development of globalization, the world has to adjust itself within universities, and the construction of *new disciplines* has become the focus of university construction nowadays. From February to June 2017, in just four months, the New Discipline construction released the Fudan Consensus, Tianda Action, and Beijing Guide. The Beijing Guidelines are guiding documents. While this is true, there is still a lack of consistently developed knowledge and understanding of the definition, value orientation, and improvement of the disciplinary system of new disciplines in the education sector. Research is limited to what is a new discipline and how to cultivate talent for new disciplines, and how to integrate them into industries. However, globally, there is a consensus that the training of future talents and scientific research must break down disciplinary barriers and involve multidisciplinary cooperation. In his book "Complexity—A Science Born on the Edge of Order and Chaos" in 1997, the American scholar Michel Waldrop described in detail the Santa Fe Institute, an interdisciplinary research institute comprising scientists from different disciplines. This institute is arguably the earliest attempt to build a *new discipline*.

In 2019, the Ministry of Education, the Ministry of

Science and Technology, and 13 other departments jointly launched the "Six Excellence and One Excellence" program 2.0, and the construction of new engineering, new medicine, new agriculture, and new arts is gradually heating up. In the article "What Kind of Talents Should be Cultivated in the New Liberal Arts," published by Guangming Daily in 2019, the study emphasizes multidisciplinary collaboration and the integration of information technology. In this study, a comprehensive interdisciplinary collaborative teaching approach between pedagogy and multiple disciplines and fields is used to put the construction of the new liberal arts into practice. A cross-border collaborative faculty with Cornell University, an interdisciplinary collaborative faculty with Guangzhou University and the Chinese University of Hong Kong, and a cross-sectional three-tier faculty synergy with faculty at all levels of basic education were established. In developing pedagogical disciplines and curriculum content, the program breaks the traditional inertia of disciplinary logic and circumvents the problems of outdated teaching materials and inadequately updated knowledge. Moreover, the program establishes task-driven pedagogical inquiry guided by hot issues in education and effectively integrates teaching resources to carry out cross-field, cross-disciplinary, and cross-school teaching content, teaching resources, pathways, means, and technical reconfigurations of teaching. A rapid response mechanism for pre-service teacher personnel training, scientific and technological innovation, and educational innovation of university talent services is constructed.

5.3. Immersive and Experiential Project-Based Teaching Ties the Whole Education Process Together in Rural Areas

A rural curriculum is developed as a project to train pre-service teachers, which optimizes curriculum structure, improves teaching methods with an emphasis on student-led learning, and provides a variety of rural immersion experiences for pre-service teachers to better understand the countryside, cultivate a passion for rural education, and prepare them to enter rural education in a professional role. Through the use of rural resources for the development of a project-based boutique curriculum and the establishment of project collaborations with kindergartens, primary schools, and junior high schools, the advantages of universities and basic education can be effectively combined while making up for some of their shortcomings. For example, the biggest problem in the training of pre-service teachers in colleges and universities is the lack of practicality and inadequate seeing of specific teaching phenomena. By inviting front-line teachers in basic education to give lectures and co-teaching, allowing pre-service teachers to form Youth and Blue Project groups with front-line teachers in basic education, and sending students to front-line schools to follow up on projects, internships, apprenticeships, summer research, and three rural areas. The project has effectively made up for the shortcomings of pre-service teacher training in universities.

Additionally, rural teachers have a high workload, limited

translation skills, and limited text writing abilities, which can be compensated for by the research strengths and research platforms of universities. Furthermore, linking kindergarten, primary school, junior high school, senior high school, and the university has effectively promoted educational cooperation and teaching reform within education, with cross-phase collective lesson preparation/collective teaching and cross-subject collective lesson preparation/collective teaching becoming the norm, thereby contributing to the improvement of basic education quality. For example, early childhood education and pre-reading learning co-teaching in the lower kindergarten and primary school levels, and group reading teaching in primary and junior high school languages have all achieved better results and performance.

Innovating university general education curriculum to provide pre-service teachers with a platform for better understanding rural education.

In addition to reforming the content and methods of the professional and practical courses in pedagogy, the project team has carried out corresponding reforms based on the original general studies courses in universities. The general education content of pre-service teacher education was reformed by making full use of the multidisciplinary development of the comprehensive university. The original textbook-dependent general studies course was transformed into a platform course in which teachers from different faculties and disciplines were invited to deliver lectures, theme-based teaching, or case-based teaching. Among the subjects covered in the general education courses are education, psychology, history, management, ethnography, anthropology, ecology, sociology, and even ethnic medicine. This arrangement effectively broadens the pre-service teachers' multidimensional understanding of the countryside and rural education and equips them with the ability to discover the diversity of rural resources.

Throughout the curriculum and in the activities of the pre-service teachers, such as the three rural areas, the teaching of rural areas, innovation and entrepreneurship, and skills competitions, we encourage and create conditions for pre-service teachers to apply the knowledge they learned in general studies courses in specific activities and to encourage students to use it. The process and effects of application are presented in a variety of forms as a basis for students' independent learning.

6. Conclusion

To promote the revitalization of rural education is to promote rural education through the revitalization of teachers to achieve quality equity in rural education. A reform of pre-service teacher education does not mean a rejection of the original content and form of pre-service teacher education but a consideration of how western universities, especially those responsible for training rural teachers, can shift pre-service teacher education from a closed and static model to one that is generative, developmental, and non-linear. It emphasizes the culture, experience, and a priori knowledge

of individual pre-service teachers, expands pre-service teachers' feelings and understanding of rural society and rural education, and enables pre-service teacher education to move from closed book knowledge, school knowledge, and public knowledge to practical knowledge, social knowledge, and personal knowledge, so that the original linear model of pre-service teacher training is transformed into a dynamic and generative model. Not only can it produce teachers for rural education, but it can also provide diversity in employment options for pre-service teachers.

Our practice and research are promoting the generativity of teacher education courses in colleges and universities. It is putting the training of pre-service education into rural education context, allowing pre-service teachers to discover, experience, perceive, and acquire, so as to develop their ability to adapt to rural education. After four years of practice, we have proven to be successful, and we have also sent a large number of qualified teachers to different rural minority areas. We believe that we can continue to follow this model in the future, and we can also build on this foundation with more innovations.

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