ORIGINAL ARTICLE

Construction and Perspective Thinking of the Training Model of Teachers' Application Ability in Online Class: Take Sichuan Cloud Education as an Example

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***Abstract**: Improving teachers' online class application ability is a critical issue that needs to be addressed in the Sichuan Cloud Education promotion process. The four-stage training model of Sichuan Cloud Education constructs a reproducible and easy-to-promote online class teacher's application ability model. It provides practical solutions to poor pertinence and limited application in previous training and provides a reference for China to promote the teaching team's construction in the information environment. This paper started from the status quo and problems of "Sichuan Cloud Education," then explored its training model and curriculum system, and finally put forward some perspective thoughts on the development of "cloud education."*

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HUMAN society has entered the 21st century. Information technology, marked by computers, multimedia, and communication networks, is developing rapidly worldwide. In particular, the widespread application of Internet technology is strongly driving the in-depth changes in the global economy and society, and changing how people survive, live, learn, and develop. The economy and society's information level poses new challenges to talent training and provides a remarkable new space for education development. After more than two decades of development, China's information level has also made considerable progress in infrastructure, digital resources, personnel training, key technologies and standards and has entered a higher development stage (Zhou et al., 2020). Under the guidance of the national concept of promoting education equity, the promotion and training of online class teachers' application ability have become a systematic teaching reform project in the information age. The reasonable and practical use of the online class is an effective way to realize the broad sharing of high-quality education.

The online class of Sichuan Cloud Education is a significant initiative of the Sichuan Provincial Department of Education to promote its education alliance's construction through education informatization. It is a public welfare high-quality classroom teaching live broadcast platform built based on the provincial public service platform for educational resources with "many pairs, one screen, three pictures, and multiple choices." It has high 370T storage and 10G bandwidth service capabilities. Through "Sichuan Cloud Education," more children will be able to share the fruits of educational reform and development under the same educational "cloud" (Zhong, 2021). This article is based on the construction connotation of Sichuan Cloud Education and thinks about some construction problems.

Status Quo and Problems

The Construction Status of the Online Class of Sichuan Cloud Education

Since the launch of Sichuan Cloud Education at the end of 2018, the first phase has 15

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provincial-level demonstration high schools as anchor schools and 110 relatively weak high schools as receiving schools to carry out regular online class teaching. In the second phase, 28 anchor schools and 1,016 receiving schools were added, covering the entire preschool, elementary school, junior high school, and high school. Judging from the effects of the first phase of operation, Sichuan Cloud Education has effectively promoted the overall improvement of the primary education and teaching quality of the province through the implementation of several measures to form a teaching alliance, high-quality school demonstration and leadership, and radiation to drive weak schools in the alliance.

According to the characteristics and reality of teaching in each stage, the online class broadcasting and receiving forms of Sichuan Cloud Education can be divided into four types: live teaching, recorded teaching, implanted teaching, and observation teaching.

- In live class teaching, the receiving end and the broadcasting end school learn simultaneously, at the same step, and with the same requirements.

Live class teaching refers to classroom teaching in which teachers and students of the receiving school receive and participate in the broadcast school's teaching activities simultaneously through the Sichuan Cloud Education platform. The live class is mainly based on the broadcasting school, and the receiving school cooperates to form a teaching alliance, which has the same time, same steps, and same requirements (Luo, 2020).

- The receiving end and broadcasting end schools are the main body and mutually optimized in the recording and broadcasting class teaching.

Recording and broadcasting class teaching means that the broadcaster school records the whole classroom teaching process and simultaneously releases classroom teaching videos through the Sichuan Cloud Education platform. Teachers at the receiving end school record and broadcast lessons, conduct research, arrange students to preview or make necessary supplements and then combine the teaching with broadcast end teaching videos. The recording and broadcasting class takes the broadcaster and the receiving school as the standard main body and appropriately delays teaching progress and tasks (Zhao et al., 2017).

- In implanted class teaching, the receiving school vigorously absorbs the "teaching essence" of the broadcasting school.

Implanted teaching means that the receiving school selectively uses the teaching videos and resources provided by the broadcaster school based on the actual teaching through the Sichuan Cloud Education platform in daily teaching; And the classroom teaching form that internalizes the educational teaching and teaching research activities of high-quality schools (Geng, 2016). The implantable class teaching takes the receiving end school as the main body and integrates the school's management and culture, promoting

the receiving end school to obtain the resources, motivation, and sustainable development ability.

- In observing class teaching, the receiving end school "learns with an open mind" to the broadcasting end school.

Observation class teaching refers to the remote class teaching form in which the receiving end observes, learns, and learns from the broadcasting end school's teaching activities through the Sichuan Cloud Education platform. Observation class teaching relies on the radiation demonstration of the broadcasting school and the guidance of famous teachers, focusing on the receiving end teaching and the student activity scene, and promoting the all-round improvement of the quality of classroom teaching in the receiving end school.

Problems in the Application of the Current Sichuan Cloud Education Online Class

- The administrative ability to manage cloud education needs to be improved.

The administrative management is inadequate in the top-level design, project planning, program implementation, teaching management, evaluation, and supervision of the online class software and hardware construction and development of the region and the school. Therefore, it is urgent to improve the information literacy and innovation leadership of managers systematically.

- Instructors are inadequate in blended teaching capabilities based on online classes.

Most of the anchor school teachers have excellent face-to-face classroom teaching experience, but they will not adapt to the online class and fail to attend the class. At the receiving end, teachers do not know how to combine online classes with face-to-face classrooms and carry out blended teaching scientifically and reasonably.

- Technical support personnel lack systematic and standardized equipment management and maintenance training.

Many schools do not have dedicated online class technical support personnel, and most of them rely on information technology teachers as part-timers. Its insufficient knowledge and understanding of the online class caused irregular and unreasonable management and maintenance and untimely technical support.

Cultivate Model Construction

The openness, sharing, collaboration, and autonomy of the network environment are different from the closeness, exclusiveness, dominance, and passivity of the traditional classroom environment. Therefore, online courses' training model construction cannot only apply traditional courses' ideas and methods. On the contrary, it is necessary to

give full play to online media's advantages and appropriately reflect contemporary education reform (Zhang, 2013).

Training Object

Cloud Education focuses on the self-directed learning of the training objects. Learning can be done individually or collectively, breaking traditional classroom teaching limitations on learning objects, number of students, and learning time. Therefore, it is more suitable for national and lifelong learning. According to the actual work carried out in the Sichuan Cloud Education online class, we divide the training objects into three categories: school administrators, lecturers, and technical support (Zhang & Chen, 2018).

- Administrative Team

The management team mainly includes the directors in charge of the education administrative departments of each city (state), the heads of the educational institutes (academies), the heads of technical equipment (audio-visual education), the principals and deans of the anchor schools, and receiving schools, etc.

- Subject Lecturer

Subject lecturers include teachers in various subjects who participate in live classrooms, recorded classrooms, implanted teaching, and observation teaching.

- Technical Support Personnel

Technical support personnel include technical equipment (audio-visual) personnel of various districts (counties) and various alliance schools' technical service personnel.

Training Principle

Sichuan Cloud Education teacher application ability improvement training is guided by improving online class application ability, thus promoting alliance schools' regular application. Carry out classification promotion by implementing on-demand training and innovating the training mechanism, curriculum system, and evaluation plan. To give full play to the advantages of the network environment and reflect the characteristics of "cloud education," the teaching design of Cloud Education is carried out. The Cloud Education platform should follow the following five training principles.

- Train as needed and teach as per the aptitude.

Before training, conduct detailed research in a layered and classified manner to determine the shortcomings of various students' teaching management and application ability. Carry out targeted training based on survey results. During the training process, the trainees' learning and training data are collected throughout the process, and the training content is adjusted in time, and the guidance is tracked according to the trainees' feedback during the training process. "Training according to needs," "Teaching as per

their aptitude," and "Learning in accordance with the teaching," and "Selecting learning following their aptitude" complement each other and jointly promote the overall development of students. Teachers "teach students as per their aptitude," and students should also "learn from teaching." Choose what is right to do, and change if it is terrible. Students should also be allowed to "choose studies based on their aptitude" and develop freely according to their abilities, interests, and other exceptional circumstances. Combining the three emphasizes both the "teaching" of teachers and students' "learning" to achieve harmony and unity.

- Application-driven and precise breakthrough.

Cloud Education focuses on solving the critical problems of online course education in education and teaching management, classroom teaching, and technical support services. Based on classroom teaching applications, targeted training is carried out around applying input and output ports. This training principle is in line with the exploration-based teaching model, which is conducive to cultivating students' creative ability and independently analyzing and solving problems. It is an efficient training principle for online class teaching that is very practical, highly creative, and has obvious development times (Jiang, 2018).

- Ability-oriented and correcting problems.

Cloud Education is oriented to improve the teaching management and application ability of trainees, correct their problems, and strive to solve the problems in the practical application of online course teaching. The training of trainees is to directly improve the ability of Cloud Education managers and employee skills and provide Cloud Education with new work ideas, knowledge, information, and skills. It is a fundamental way and an excellent way to increase the talents, dedication, and innovative spirit of employees. It is the most critical human resource development. It is a more critical human capital investment than physical capital investment.

- Classification promotion and gradual progress.

The knowledge described goes from the shallower to the deeper, step by step in the daily training and courses. The goal is to classify and improve managers' teaching management ability, teachers' mixed teaching ability, and technical personnel's technical serviceability based on standards. Such training goals help teachers pay attention to students of different levels and provide them with a "ladder" of effort. Also, it can make teachers' teaching better and improve their classroom teaching efficiency.

- Focus on innovation and bring forth the new.

Cloud Education focuses on integrating information technology and teaching innovation, practice, and condensing new teaching models. To develop Sichuan Cloud Education based on teaching and application and comprehensive innovation, curriculum integration using information technology as a cognitive tool will undoubtedly be the dominant

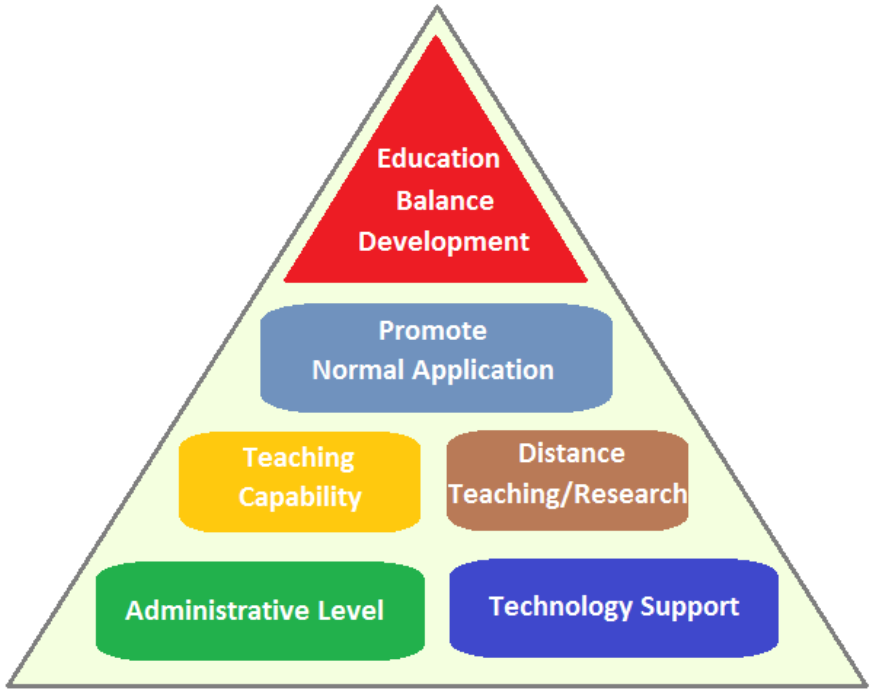

Figure 1. Training Objectives.

course learning method in the information age. It will indeed become the primary method of school teaching in the 21st century. In the current background of China's active promotion of education modernization and informatization, advocating and exploring the teaching of information technology and curriculum integration has vital practical significance for developing students' "information literacy" and cultivating students' innovative spirit and practical ability (Wang et al., 2020).

Training Objectives

Because the purpose of Cloud Education is to support and help trainees achieve their learning goals. Therefore, the teaching design in Cloud Education should pay attention to establishing training goals. The training goal of Sichuan Cloud Education teacher application ability improvement is to fully realize the standard and on-demand application of online classes in alliance schools and promote the realization of a high-quality and balanced education in Sichuan Province. As shown in **Figure 1** below.

- Consolidate the foundation and consolidate the foundation, focusing on improving the Cloud Education management and service level.

Teaching quality is the lifeline of a school. If a school wants to improve the quality of teaching, it must have a progressive educational ideology, a scientific management level, and an efficient school leadership team; at the same time, it must have a relatively complete and scientific management mechanism as a guarantee; it must also have a team of teachers. They love education, unite and cooperate, and work hard.

Sichuan Cloud Education continuously updates the Cloud Education educational concept of managers through the training of trainees, enhances information leadership and information literacy, and improves the application management and service level of "cloud education."

- People-oriented and vigorously improve the teaching ability of cloud education teachers.

Sichuan Cloud Education adheres to the people-oriented principle, which is to adhere to the survival and development of the trainees; respect the subject status and individual needs of the students, create a relaxed and harmonious humanistic environment, cultivate the students' sense of autonomy and personal initiative, and promote the physical and mental growth of the students and comprehensive development.

In the process of training and practice, Sichuan Cloud Education strives to solve the problems encountered in the process of cloud education teachers' online teaching, online teaching, and research and operation practice. It aims to establish a long-term mechanism to continuously enhance teachers' essential ability and blended teaching ability for the application of Sichuan Cloud Education and enhance cloud education teachers' ability to efficiently carry out remote collaborative teaching and research and teaching reform (Yuan, 2018)

- Keep improving and efficiently promote the regular application of cloud education.

Through hierarchical and classified training in teaching management, teaching and research guidance, teacher training, technical support, operation and maintenance, all-round guarantee, and promotion of the normalized application of "Sichuan Cloud Education."

i. Make steady progress and improve the quality of teaching.

The anchor schools' excellent teachers promote the improvement of ordinary teachers' teaching level in the receiving schools and promote Sichuan Cloud Education's classroom teaching quality.

ii. Do not forget the original intention and promote the balanced development of education

Through systematic training, the teaching, research, and teaching reform capabilities of personnel in all aspects of cloud education are comprehensively improved. Taking teacher improvement as the starting point and high-quality schools as the main body, through the effective integration of live teaching, recorded teaching, implanted teaching,

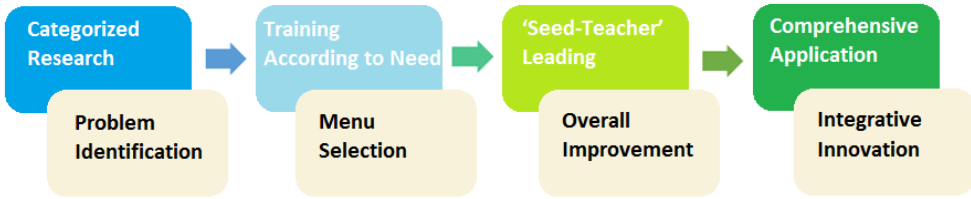

Figure 2. Training Phases.

and observation teaching, systematically and comprehensively promote the sharing of high-quality educational resources comprehensively promote Balanced education development.

Training Stage

This training model is divided into four stages: "categorized research and identification of problems; training according to needs, menu selection; 'seed-teacher' leading, overall improvement; comprehensive application, integration, and innovation." As shown in **Figure 2** below.

- Categorized research and identification of problems

In the early stage, network research was conducted for different types of training objects. Identify the key and challenging problems of different objects in the online class application, establish the corresponding training course system, and refine the course menu.

- Training according to needs, menu selection

This stage is mainly carried out online. Participants of the three types of training need to choose their courses through the course menu based on their school's actual online class application (except for required courses, optional courses are self-selected). It is planned to use expert lectures, case teaching, participatory, situational, and seminar methods (Cao, 2020).

- 'Seed-teacher' leading, overall improvement

Seed teachers should be selected in the sub-consortium. The seed teacher staff consists of broadcast-side teachers (all participating) and receiving-side teachers (one to three selected depending on the sub-consortium's size) participating in centralized offline training. Carry out hybrid training based on online teaching. It is mainly carried out through remote online guidance, giving full play to seed teachers' leading and demon-

strative role. On the one hand, seed teachers must fully carry out the practice and demonstration of blended teaching, and on the other hand, they must do an excellent job of guiding other teachers in the sub-union.

- Comprehensive application, integration, and innovation

In the comprehensive application stage, the comprehensive application of the online class of Sichuan Cloud Education is promoted through observation and demonstration, alliance and mutual assistance, and extensive practice. Promote innovative applications by organizing online class teaching competitions at all levels. The characteristics of the Sichuan Cloud Education application are formed by developing online class-based teaching research and practical innovation.

Curriculum System Construction

The curriculum training system is divided into five modules: teaching ability, distance teaching and research, concept strategy, organization management, and technical operation. Each module is designed with 5-6 targeted course areas.

Among them, the teaching ability module covers six areas: online teaching resource construction and application, minimalist teaching technology application, Cloud Education teaching design, online interactive methods and strategies, teaching visualization technology and strategies, and digital teaching evaluation strategies and practice.

Distance teaching and research cover five areas: the construction of teachers' online teaching and research community, teaching and research theory and practice in the context of informatization, online collaborative teaching and research practice, regional collaborative teaching and research cases and practices, and the construction and application of teaching and research results.

The concept and strategy module covers six areas: policy document interpretation, informatization to promote the leapfrog development of school education, online teaching theory, online teaching design-related theories, blended teaching-related theories, and information curriculum teaching-related theories.

The organization management module covers five areas: city and county cloud education construction and management, city and county cloud education teaching and research management, cloud education teaching management, cloud education teaching and research management, cloud education achievement construction and management.

Technical operations cover five areas: network basic guarantee technology application and practice, cloud education teacher equipment management and maintenance, live classroom technology guarantee and practice, remote teaching and research technology support and guarantee, cloud education resource storage, development, and application.

Sichuan Cloud Education teachers' application ability improvement training adopts "menu-based course selection," training on-demand, for three different types of training objects, set up mandatory courses and optional courses. The required courses are the required courses for all the training subjects who need the basic concepts,

knowledge, and skills to carry out cloud education work. Elective courses are comprehensive and innovative courses aimed at the personal interests, precision engineering, and ideal pursuits of different training objects. Compulsory courses guarantee high-quality applications, while elective courses guarantee training goals and meet trainees' individual learning needs.

Perspectives

The birth of the Internet has affected the development of all walks of life. The rise of online education is naturally closely related to its advantages. Although network Cloud Education is becoming more and more popular, there are still some disadvantages. I hope that the development of Cloud Education will get better and better in the future and solve these problems effectively.

Advantages of Sichuan Cloud Education

- Innovate Mechanism Construction

The training mode adopts the method of forming a learning community by sub-union to ensure the curriculum's integrity. Through pre-training research, identify the problem; categorized training, training on demand; thereby ensuring the promotion's effectiveness.

- Innovate the Course Experience

In the past, there were often embarrassing situations in which the training courses did not match the trainees' needs. The use of "menu-based" training can solve this problem. Ensuring the achievement of training goals also meets the individual learning needs of trainees, dramatically improves their learning effects, and ensures the flexibility of improvement.

- Innovate Evaluation Methods

The training mode uses the whole process of learning data recording to track, evaluate and feedback the trainees' improvement. It can give early warning of possible learning difficulties and problems to ensure improved improvement (Liu, 2020).

- Innovate The Management Model

This training model establishes a personal growth file for each trainee. The personalized management mode of innovative training guarantees the rationality of promotion.

Disadvantages of Sichuan Cloud Education

- Lack of Emotional Communication between Teachers and Students

This training model makes the distance between students and teachers farther. Students face a cold machine, and it is difficult for teachers to get inside students' hearts. However, emotional communication still requires face-to-face conversations between people.

- Students Can Only Conduct Closed Learning

Although online education's current development is becoming perfect, some live broadcast modes also support real-time video and voice interaction, but the learner is essentially a person to complete the study on a computer or mobile phone. The learner is human. So people need a real social occasion and the ability to collaborate and discuss with each other in teams. The current Cloud Education platform cannot solve this problem well.

- High Requirements for Student Autonomy

Online education entirely relies on the autonomy of students. It is difficult for teachers to supervise and deter students across the network cable. Therefore, the teaching effect has a significant correlation with the student's learning state. It makes it unrealistic for some students with insufficient desire to learn to rely solely on online education to learn systematic knowledge (Cai et al., 2020).

Prospects for the Future Development of Sichuan Cloud Education

The online class of Sichuan Cloud Education has various courses that students learn to meet their needs for distance online education and can be used to supplement full-time student education on campus. At the same time, it can also serve for continuing education and lifelong learning for the whole society. However, I think the implementation and application of online courses need to be further strengthened and expanded.

With the construction of hardware such as network classrooms and multimedia classrooms in colleges and universities, the network courses on the Sichuan Cloud Education network platform can be used to enter the teaching classroom through the campus network, so that online class can replace the traditional lecture classroom. In this way, on the one hand, it relieves the shortage of teaching resources in many schools and saves teaching resources. On the other hand, it has promoted the reform of the teaching model of colleges and universities, and at the same time, cultivating the quality of students' self-learning and innovation so that excellent educational resources can be truly shared. It gives full play to the value and role of online courses. Cloud Education online class has been tried out in some schools instead of traditional university teaching lecture halls. This should become an essential trend of the online courses we pay attention to and research.

In general, in recent years, the level of Cloud Education online courses has been significantly improved, and particular achievements have been made in the construction of online courses. However, the construction of online courses is a complicat-

ed system engineering. How to build high-quality online courses, give full play to the benefits of online teaching, and improve teaching quality, there are still many issues worthy of our research and thinking.

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