School-Based versus Distance Training
for Rural Teachers in China

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ABSTRACT :

Over the past decade, a multi-level network comprising national, provincial, county, and school-based training has been established in China for teachers' professional development. With emphasis on the organization, implementation, and effectiveness of the teacher training system across the country, this paper intends to present a descriptive analysis of rural teachers' training. Mainly two types of training are investigated here ;- those promoting teachers' overall capacity and those facilitating teachers' grasp of educational technology. Through examination of teachers' professional development in rural China, this paper aims to shed light on specific issues that concern teachers' education in a global context.

1. INTRODUCTION :

International educators agree that teacher quality is one of the key factors determining the quality of children's education. Primary and secondary school teachers' professional enhancement therefore assumes the high priority in developed countries and developing countries alike. China has more than 10 million school teachers nationwide, and about 70% of them are located in rural areas. *The Distance Education Project for Rural Schools* (DEPRS), implemented by the Chinese government to improve basic education in rural areas of China, completed in 2007. As "the largest ICT project in the world up to now" (Yu & Wang, 2006, p276), DEPRS has spent ¥10 billion on construction of a nationwide rural distance education network comprising of three delivery models (DVD, satellite TV, and computer equipped with internet), from which 118 million rural pupils are supposed to benefit. Although DEPRS is quite successful in conveying advanced teaching materials from urban centers to remote rural areas, it faces serious challenge as how to improve teachers' classroom performance and update their pedagogy. Over the last several years, a variety of projects have been carried out across China to help rural primary and secondary school teachers grasp information and communication technology (ICT) and apply knowledge obtained via distance education to classroom practices.

Distance education is widely used for teacher training around the world, in both small and large countries and in a variety of contexts. There are now massive teacher training projects in Indonesia, Nigeria, and India which offer courses to thousands of teacher trainees. In both Tanzania and Zimbabwe where teacher shortage was severe, new recruits to teaching were enrolled in large-scale programmes of teacher training run at a distance and were put into the school directly. More often, however, such programs have been run for teachers who are already in service. Botswana, Brazil and Sri Lanka used distance learning tools to reach experienced teachers who lack a teaching qualification (Perraton, 1993, pp. 4-5). These programs have in many cases been effective (Robinson & Latchem, 2003, p 44).

Studies, nevertheless, have also shown the serious challenges that distance teacher training projects face. In Botswana, the government has sponsored a program called *Diploma in Primary Education* to upgrade primary school teachers' qualification since 1999. Although teachers enrolled in large numbers, only a few completed the program after five or six years. "Records show a disturbing trend of low completion and high attrition rates" (Sikwibele & Mungoo, 2009, p.3). Also in the same country, the University of Botswana designed a training programme for in-service science teachers. This program blended online interaction with the face-to-face workshop and the printed material handouts. The intervention project was rated as "not successful" due to the teachers' lack of internet access, time, and lack in technical support at the workplace (Boitshwarelo, 2009, pp.10-14).

Scholars further indicate that it is not an easy task for teacher trainees to take what is learned about a technology application in an online module and implement it in a classroom context. A range of factors have affected teachers' capacity and willingness to apply new technology to changing their instructional approach and promoting student learning (Herrington, Herrington, Hoban & Reid, 2009, p. 193). A research conducted in Pakistan demonstrates that few teachers who had learned innovative teaching approaches through in-service training were able to adopt new pedagogy because the school head and their colleagues did not support them to make the changes. Furthermore, to try out the new methods was not only time consuming, but also risky. Experiments in classroom could lead to the decline of students' grade temporarily (Mohammad & Harlech-Jones, 2008, p. 536). Teachers were discouraged from implementing the new strategies also because of other restrictions in their own classroom or school context. A survey of K-12 teachers who went through an online training program in ICT discovers that the lack of access to reliable computers and other technology support was a major problem for many teachers wishing to practice pedagogical knowledge learned in the program. A lack of time was often cited

as another impediment (Herrington, Herrington, Hoban & Reid, 2009).

In my paper appearing in *IRRODL* (McQuaide, 2009), I have discussed the overall implementation of DEPRS (2003-2007) in China. This paper focuses on one component of the project, examining rural teachers' training sustained by the three learning tools implemented by the DEPRS. Chinese authority and educators have correctly emphasized teachers' general quality as well as their teaching capacity. Premier Wen Jiaobao highly remarked on teachers' role by saying that "China's rise or decline is dependent on education, and the quality of education is decided by teachers. In this sense, teachers' training is the key to China's development" (Song, 2008, p.3). The three learning tools installed in 110,000 low level rural elementary schools (grades one through three), 384,000 intermediate schools (grades one through six), and 37,500 junior high schools (grade seven to nine) have provided technical infrastructure for enhancing basic education as well as teachers' professional development in rural areas.

A variety of teacher training programs have been implemented in China that offers degree and non-degree trainings through a multi-level network, by a blended approach, and in various forms. Mainly two aspects of teachers' training are looked at in this paper: first, I explore the trainings promoting teachers' overall capacity propped up with distance learning tools; and secondly, I examine the various forms of training aimed at facilitating rural teachers' ICT skills specifically. With emphasis on the organization, implementation, and effectiveness of the teacher training system across the country, this paper intends to present a descriptive analysis of rural teachers' training in today's China. Little research has been done on the topic in the English world. It will address specific issues that concern teachers' professional development in a global context as well.

The China Ministry of Education issued an *Action Plan to Revitalize Education from 2003 to 2007*, paying special attention to rural compulsory education development and reform. It further emphasizes teachers'

professional training. Over the next several years, the Ministry of Education decided a multi-level system connecting national and provincial educational institutions with county training sites and individual schools would be constructed across the country, offering training to rural teachers relying on the distance delivery models installed by the DEPRS. To fulfill the task, the National Teachers' Web Union was formed and Continuing Education Website created. In addition, a national project is launched to promote teachers' mastery of educational technology.

2.1 Web Union for National Teachers' Education (Web Union)

As a crucial component of the action plan, a Web Union was formed in September 2003, undertaking the formidable task of training over 10 million in-service primary and secondary school teachers nationwide. The Web Union comprises eight key normal universities, three major distance education institutions, and a publishing house (Ding, 2004). In 2004, the Ministry of Education issued another document, proposing to speed up the formation of the Web Union. It has also elaborated the goals, timeline, as well as procedures of a new round national teacher training that the Web Union would undertake. In the opinion of some researchers, the establishment of the Web Union marked the turning point in China's teacher education, that is shifting from pre-service education to life-long training (Wu & Zhang, 2009).

The Ministry of Education recommended the Web Union be responsible for organizing a variety of training sessions during the next 5 years. Following the government guideline of "training all teachers with emphasis on backbone teachers and rural teachers", a large number of courses in new teaching pedagogy, curriculum reform, educational technology, and teachers' professional integrity would be offered. More specifically, first, the Web Union would provide at least 240 hour training for over 10 million in-service teachers across the country. Second, it should offer degree courses to two million

backbone teachers for them to upgrade their education criteria. In 2002, only 33.09% of primary school teachers held college diploma and 19.74% of middle school teachers held university degree. By the end of the period of 5 years, the percentage of both groups was expected to rise substantially. To improve the overall quality of the rural teachers located in isolated west, each member university of the Web Union decided to support one poverty stricken county in West China, helping in total 10,000 teachers update their education credentials without charge. Thirdly, Web Union would select and cultivate one million rural head teachers, turning them into experts in their subjects. Last but by no means least important, the Web Union would also shoulder the task of supplying teaching materials and organizing training projects for rural teachers in west China in collaboration with the DEPRS (Ding, 2004; China Ministry of Education, 2004).

When the construction of the Web Union is fully completed, a multi-level network based on three delivery models of satellite TV, internet, and face to face training will serve teachers nationwide. By early 2004, CCTV Education Channel began to broadcast special programs designed by the Web Union. http://www.jswl.cn/, the official website of the Web Union is created, functioning as the national platform for all union members. The core courses accounting for 20% of total credits offered by the 8 key normal universities and the Central University of Radio and Television became shared resources, open to all enrolled students; credits are transferrable among member universities of the Web Union and over 20 online courses in different subjects were open to all website visitors free of charge (Ding, 2004).

Regional Web Unions began to emerge in a number of provinces as well, acting as the provincial platform for teachers' continuing education. Sichuan Province took the lead, forming Teachers' Web Union in 2005. Its website http://www.scwl.cn has been set up and run as a pilot project. Following suit, a Web Union formed in Fujian Province http://jspx2.fjtu.com.cn and also in Jiangsu

Province http://www.jste.org.cn (Zhang, 2008). In the coastal provinces of Guangdong and Fujian, a teachers' distance education center was built in a large number of Teacher's Training Schools located in county seats in 2009. Scattered across the provinces, these distance education centers are specialized in organizing on-site tutorial sessions for rural school teachers drawing on the course materials either provided by the Wet Union or broadcasted through television education channels, combining satellite TV and internet instruction with face to face tutorials (National Teachers' Web Union, 2009).

At the working meeting of the Web Union held at Beijing Normal University on July 6, 2009, vice minister of education Chen Xiaoya summarized the progress that the Web Union made over the last 6 years, stating that it had offered trainings to six million in-service teachers in total, and over one million school teachers earned diplomas or degrees from its member universities through distance education (News Column, 2009).

2.2 Project for Promotion of Teachers' Technology Capacity

To support the DEPRS and promote school teachers' grasp of educational technology specifically, the Ministry of Education implemented a project entitled *Capacity Building on Educational Technology for Primary and Secondary School Teachers across China* in 2005, as another key component of the Action Plan. The project is aimed at offering 50 hour training in educational technology to the school teachers nationwide during a period of two years. Thus by the time when the three distance delivery models of DEPRS were fully installed across China, teachers would be able to operate them. Ministry of Education issued *Standard Requirement for Primary and Secondary School Teachers' Capacity in Educational Technology* as training guideline. Educational technology training courses have been designed; standard examinations are drafted and planned to hold twice a year; and certificates are issued to teachers who have passed the examinations as a major criterion

for promotion (China Ministry of Education, 2005, p. 20).

The project has created a website http://www.teta.com.cn as their central platform ; a training program was carried out in 9 pilot locations in 2005, and expected to spread to most provinces in 2006. Yet the implementation of the project was behind the schedule. According to a high ranking official in the Ministry of Education, by November 2007, the project has been launched in 14 out of the total 30 provinces and autonomous regions in China, and near 400,000 teachers went through training sessions, of whom 128,000 passed the capacity examination. In these 14 locations, training bases are established in provincial capitals, prefecture centers and county seats, forming a multi-level network responsible for technology education (Song, 2008). Yunnan, one of the 14 locations, is a border province where over two dozens of minority ethnic groups are concentrated. Provincial training station was set up at Yunnan Center for Educational Technology in 2005, completion of training courses became a requirement for school teachers since 2006, and the certificate issued by the Ministry of Education was listed as one of the crucial qualifications for teacher hiring and promotion. A small number of backbone teachers passed the examination in 2007 (Yunnan Education Bureau, 2005 ; Luo, 2008). Drawing upon the course materials provided by the national project, Yunnan Center for Educational Technology drafted a distance training scheme in 2009, on purpose to train all school teachers in the province during a period of 3 to 5 years.

2.3 Continuing Education Website

With the full name *Continuing Education for Primary and Secondary School Teachers across the Country* (http://www.teacher.com.cn), this is a national website created and maintained by Northeast Normal University and several other provincial educational institutions in 2002. The website received the strong support of Ministry of Education, and affiliated itself with the Web Union when the later was formed, having undertaken numerous training programs together with

the Web Union. The site claims that by May 2009, it had established training stations in 18 provinces and autonomous regions across the country, set up learning resource centers in 600 prefectures and counties, developed 1,300 courses in 10 subjects, and offered distance training to 2 million school teachers totally (Continuing Education Website, 2010 ; Culture Colum, 2007 ; Front Page News Summary, 2008).

In addition, the Continuing Education Website became a forum for school teachers to voice opinions on education reform, exchange teaching experiences, and socialize with each other. By the end of 2006, nearly 10,000 school teachers registered blogs with the site and posted education dairies online. Discussion topics include teaching or training reflections, ideas on course designing, and curriculum reform information. Some compose literary essays or poems, and others talk about leisure activities (Liu, Sun & Li, 2008).

2.4 Short-Term Training Programs for Rural Teachers

In addition to their original missions of upgrading in-service teachers' educational criteria, these national distance education platforms have carried out large-scale short term training campaigns particularly for rural teachers over the years. With the prop of the three delivery models implemented by the DEPRS, *Summer National Distance Training Project for Rural Primary and Secondary School Teachers* (Summer Training Project) was launched in 2007. Under the direction of the Ministry of Education, the training was catered to 120,000 primary and secondary school teachers in 16 western and central provinces. The program lasted for 5 days, during which distance courses in curriculum reform, pedagogical improvement, ICT and professional integrity were taught via satellite TV and internet to teachers based in 2,149 training sites organized by townships and schools free of charge. Teacher trainees in each training site were divided into groups, who, under the supervision of tutors, attended distance classes. A training team consisting of 200 experts and national model teachers was

formed, making lecture tours to rural training sites (Shi, 2007).

After the successful implementation of the Summer Training Project in 2007, similar programs were carried out during the summer in 2008 and 2009. Continuing relying on a blended approach of satellite TV instruction, online interactional tutorial, and face-to-face workshop, the Summer Training Project in 2008 provided 40 hour training in 6 subjects for 250,000 rural subject teachers in 23 provinces and autonomous regions of west and central China. In 2009, the number of teacher trainees was expanded to 300,000, and courses extended to cover 10 subjects (Liu & Li, 2009 ; Beijing Youth Daily, July 24, 2009).

Other major training projects particularly aimed at rural teachers that are undertaken by these national distance educational institutions include "Tibetan Primary and Secondary School Teachers' Training Program" (2007), "Xinjiang Primary and Secondary School Teachers' Training Program" (2007), "DEPRS Training for Rural School Principles" (2008-2009), and "Budget Management Training for Rural School Principles" (2009). Both Tibet and Xinjiang are minority ethnic groups dominated border regions where compulsory education is lagged behind. Integrating DVD instruction with face to face tutorials, Tibetan and Xinjiang programs offered 10 days of free training to 1,000 rural teachers of model one schools (elementary schools of grade one to three equipped with TV set and DVD disks) in each autonomous regions (Shi, 2007). The two programs catered to school principles were organized by the National Center for Educational Technology and Continuing Education Website respectively. As the first large scale online training since the DEPRS had completed, the DEPRS training session intended to help over 20,000 principles of rural schools scatted among 24 provinces and autonomous regions comprehend the general knowledge in DEPRS management and operation during the period of one month (Liu & Su, 2010). The other project aimed at facilitating school principles' ability in funds management. Both projects

were delivered through the internet, and targeted at three model schools (junior high schools equipped with computers and internet, plus DVD disks and satellite TV) (Continuing Education Website, 2010).

2.5 Provincial Training Programs for Teachers' Professional Development

Training programs are organized by provinces, mainly focusing on educational technology and its application in classroom. They are largely designed in consulting with the *Standard Requirement for Teachers' Capacity in Educational Technology* formulated by the Ministry of Education. Meanwhile, the specific conditions of individual provinces are under consideration. In comparison with the national programs relying on the centrally developed course materials, independent provincial training programs are tailored to trainees and carried out in teachers' colleges or training schools, enabling teachers to communicate with their trainers face to face. In this section, a program implemented in Hubei province is discussed to typify the general procedure of teacher training at provincial level.

Although the three distance education tools implemented by the DEPRS equipped rural teachers with urgently needed resources and technological means, they post a serious challenge for the teachers knowing little about ICT. The DEPRS therefore assigned 15% of its ¥10 billion funds to teachers' training in educational technology (Jia, 2007, p.48). As early as in 2004, projects were launched to train ICT teachers and technicians for pilot schools in which the DEPRS learning tools were installed first. After 2007, when the DEPRS spread to cover more and more rural schools, a growing number of teachers went through training. In Shaanxi, for instance, 5,100 trainees in total graduated from provincial training programs by 2008; they act as ICT teachers or maintenance personnel and play a key role in prefecture, county or school-based trainings (Nie & Ge, 2009, p.41).

Hubei, located in central China, is one of the provinces that have quite successfully implemented DEPRS. From 2005 to 2007,

all rural elementary schools in Hubei began to offer English classes to children of grade three and up relying on the model one and two delivery tools. Government officials and experts highly evaluated the distance course "Elementary School Air Classroom in English" developed by the province as the "best solution to the teacher shortage in rural area" (Fang & Shao, 2007; China Education Daily, August 17, 2008). In 2007, after model three delivery tool had been installed in junior high schools, a large scale training project was launched to train ICT teachers (also acting as computer room manager). The training graduates were expected to play a key role in helping other teachers grasp educational technology that DEPRS had provided for them.

Three training sessions of 23 days were provided for nearly 1,000 teachers came from model three pilot schools. Trainees were selected based on their computer skills, strong language ability, and younger age (normally below 40 years), of whom females accounted for 13.81%. They came from 15 prefectures of the province; nearly 90% of trainees teach at schools located in township, and the rest in county seats and villages. These schools have a multi-media computer room equipped with at least 30 computers. About 20% of these schools offered two ICT classes to students weekly. In 46% of schools, one ICT class was taught per week. But 34% of schools taught no ICT class at all, which are mainly located in remote regions with undeveloped economy. The program was organized by Hubei Center for Educational Technology, and training was undertaken by the Department of Information and Communication Technology of Central China Normal University (Tan, 2008 ; He, 2008). An investigation has been conducted to identify trainees' general level of ICT ability and understand their urgent needs in order to draft a suitable training plan. 943 online questionnaires were distributed among prospective trainees, covering three main areas ;- 1) General information on individual teachers ; 2) Information on schools ; and 3) Information on teachers' ability in educational technology and the skills that they intended to learn.

The investigation results for area one shows that 76% of prospective trainees had attended ICT training class in the past, but only 36.2% were ICT teachers currently. The others were subject teachers in Physics, English, and Sports. Teaching ICT course and running computer room would become their new duty or part time position after the training. The overwhelming majority of teachers (97%) were eager to face the new challenge. The answers to questions in areas 2 and 3 display that 76% of schools could maintain and run their equipment under normal conditions, but when serious problems occurred, they had to seek outside help. About 46% of respondents were able to handle simple theoretic and practical issues on educational technology, with over 40% having stronger ability and over 10% knowing little about the subject that they were supposed to teach. The table below drawn from Tan (2008) (Table 1) indicates the major difficulties these prospective trainees encountered in their work.

As for teachers' demands and needs for training, they focus on DEPRS model three equipment installation and maintenance, closely related to their work or future work as school computer room manager. An overwhelming majority of teachers further expressed their strong desire for knowledge in educational technology, such as skills in Computer Aided Instruction (CAI) course design. The tables below, drawn from Tan (2008) and He (2008), (Tables 2 and 3) demonstrate teachers' specific requests for training content.

Goals were set up for the program following two documents issued by the Ministry of Education; organizers also considered the special conditions and demands of trainees shown by the investigation results. The program mainly covered four sections, which were divided into ten modules, on purpose to improve trainees' knowledge & skills in PC operation, as well as in establishment, operation, and maintenance of campus

Table 1 : Statistic Data on the Major Problems that Teachers encountered in Teaching

The Major Difficulties	n	%
Unable to efficiently handle distance education tools	383	40.6
Limited ability in applying educational tech in classroom teaching	515	54.6
Lack of new pedagogy	284	30.1
Limited ability in multimedia course development	416	44.1
Limited ability in software application	597	63.3

Table 2 : Training Demands : Multimedia Computer Room Management

Training Demands	n	%
Components & basic principles	648	68.7
Inventory of equipment	629	66.7
Server allocation and application	793	84.1
Computer room management and maintenance	760	80.6
Management software application	750	79.5

Table 3 : Training Demands : Course Design and Development

Training Demands	n	%
Guiding principles for CAI course design	547	60.8
Media selection and allocation for CAI course design	649	72.1
Procedure of CAI course development	678	75.3
Design and produce PowerPoint course	553	61.4
Design and produce Authorware course	701	77.9

networked internet and computers. Trainees were further required to understand the main components of satellite TV receiving system as well as its functions and operations. They should learn to design and develop CAI courses as well.

Section One of the program is designed to cover knowledge in information technology (IT), including four modules ;- 1) IT basics ; 2) multi-media software application (Photoshop, Flash, Premiere, ColdWav, and others) ; 3) course materials and teaching methods for IT course ; and 4) subject course software application (sketchpad, visual lab physics, visual lab chemistry, and others). Section Two handles DEPRS delivery tools, consisting of two modules ;- 5) receiving system of satellite TV ; and 6) establishment and management of computer room. Section Three is named 'Theories and Practices of Educational Technology'. It deals with two topics ;- module 7 discusses theories of educational technology, and module 8 focuses on study cases in educational technology. The last Section Four is devoted to CAI course design (module 9) and website development (module 10) (Tan, 2008 ; He & Zhang, 2008).

The training took place in Central China Normal University, whose Department of Information Technology has successfully carried out a number of similar training projects in the past, including *National Project in Educational Technology for Primary and Secondary Backbone Teachers*. In addition to university professors, model teachers at the primary and secondary key schools in Wuhan Municipality were recruited to work as trainers because of their rich experiences in basic education. 7 to 8 tutors were hired for each module as well. They, mainly graduate students in the field, offered tutorial service to trainees in a timely fashion. Each of the three training sessions was targeted at different teacher groups. Session One was for teachers came from schools with poor technology equipment and located in remote prefectures. Sessions Two and Three were for teachers in schools with better technical conditions and their capacity in educational technology was in general stronger. Each teacher group was further subdivided into two classes based on the ability of individual trainees. One was the beginner class, and the other was the advanced class.

The timetable of the program was tightly arranged, with 12 working hours per day. In the morning and afternoon, trainees attended classes and group work, and they worked on computer individually in the evening. Computer room tutors worked in shifts, ensuring that at least two tutors were on duty from 8:00 am to 10:00 pm daily. There was no single day off during the period of 23 days. A day-long examination was held on the last day, and discussion took place in the evening to summarize experiences and exchange views. Funding provided by Hubei Center for Educational Technology not only fully covered the program costs, but also paid trainees' boarding and food. Each school was responsible for the travel expenses only.

The program designers adopted the constructivist approach popular in science and technology education in the West. This approach turns teachers into a facilitator who asks questions and supports students from back, instead of lecturing at front and giving instructions. While talking about meth learning, constructivist educators state: "learning would be viewed as an active, constructive process in which students attempt to resolve problems that arise as they participate in the mathematical practices of the classroom." (Cobb, Wood, Yackel, Nicholls, Wheatley, Trigatti & Perlwitz, 1991). Following this line of thinking, the program was designed in a way that teacher trainees were consistently challenged with tasks referring to the skills and knowledge just above the current level of their mastery.

Task-oriented tactic was used in the program repeatedly. After completing modules on educational software application, for instance, students began to learn module 9 "CAI course design". At the beginning of the class, a well-made multi-media course was displayed to trainees to stimulate their interests. Next, a number of questions were raised to guide students identifying the software that produced the course and exploring the production process. Trainees were also urged to consider the similar courses they would like to produce. Then, they were divided into groups, to each of which a topic was assigned for making a multi-media course. References were provided for trainees, and group discussion held to search for the required sources as well as to decide the correct working procedure. Under the guidance of trainer, each teacher trainee was assigned a task, who was required to fulfil it with the help of tutor and peer trainees (Tan, 2008).

2.6 County and School-Based Training

Provincial training, although a well-organized and well-deigned training model, is available for a small number of rural teachers only. Its limited space, intensive course work, and rigid schedule have not only excluded most rural school teachers from attending, but also created obstacles to prevent trainees from digesting the newly learned knowledge (Jia, 2007 ; Jiao, 2009). The professional development of the vast majority of rural teachers must rely on trainings organized by county and, especially, school. County training is normally charged by teachers' training school, held in summer or winter vacations, and lasted for one week. Except for large scale distance programs organized by Ministry of Education, school-based training is run by each school under supervision of the County Education Bureau and on an on-going basis, with flexible timetable and trainees' active participation.

School-based training model is introduced into China from the west. A report issued by the Department of Education and Science in Britain stated: "Every school should regard the continued training of its teachers an essential part of its task, for which all members of staff share responsibility" (Bridges, 1995). This training model began in China in the late 1990s officially. The document *Proposals on the Continuing Education Project for the Primary and Secondary School Teachers* issued by China Ministry of Education in 1999 made it one of the basic forms of teachers' professional development. It urged schools to draft systematic training plans, keep individual teachers' performance on file, establish partnership with higher educational institutions, and fully employ distance education tools in training (Ho, 2009). Drawing upon several studies conducted in different locations, this section tries to sketch an overall picture of organization and operation of teachers' training at county and school levels.

Dangzhai Middle School, Gansu Province

Dangzhai is an ordinary rural junior high school under the jurisdiction of Zhangye Prefecture in Gansu Province, one of the poorest regions in China. Zhangye became one of the pilot locations for the implementation of DEPRS in 2004, with 626 primary and secondary schools in the prefecture receiving one or more of the three distance delivery models. Dangzhai is a pilot site for a model of three educational

tools, and is funded for a multimedia classroom equipped with thirty computers and broadband internet as well as a classroom equipped with an overhead projector. The school was also supplied with satellite televisions and DVD players.

By 2007, nevertheless, many teachers in Zhangye were complaining about the amount of time they had to spend on class preparation for the new multimedia technology. Owing to an already heavy workload, they continued to use conventional teaching methods. Only occasionally did they integrate multimedia material with classroom instruction and then it was usually when school inspectors stopped by for classroom observation. Yet unlike other schools in Zhangye, Dangzhai Middle School has made remarkable progress in incorporating the third DEPRS model into its classroom instruction and pedagogical innovation primarily relying on school-based training (Peng, 2007 ; Zhang & Shi, 2008).

The school administration was fully cognizant of the fact that training would be the key to the successful application of the distance delivery models. The school offered general training sessions to help teachers become computer literate and more effective at researching and utilizing internet sources. Specific training sessions were held to promote teachers develop a basic knowledge in designing and utilizing multimedia material in the classroom. To ensure that every teacher obtained the necessary computer skills, they were divided into a number of smaller groups in which the better teachers would act as tutors. The groups would also solve various problems that others had encountered. Part of this process was aided by the fact that during the initial stages of the implementation of DEPRS the principle of work sharing of teaching material was heavily promoted in the belief that it would help reduce workloads. The more capable teachers with good ICT skills were encouraged to play a key role in course development by helping to design multimedia courses in certain subject areas and by drafting courses that were peer reviewed. The final product was a

remarkable collective that was reflected in the extensive collaboration and sharing that occurred. School administrations have vowed to continue this sharing process until most teachers have become proficient in utilizing multimedia tools in the classroom (Peng, 2007).

Dangzhai has successfully promoted the development of computer technology amongst its teachers to the point where 96% of the teaching staff obtained a certificate of computer literacy issued by Zhangye Prefecture. The policy of sharing teaching materials has reduced the time spent on class preparation and hence the workload to the point where all teachers are now eager to employ multimedia materials in their classroom instruction. Furthermore, about 65% of teachers have the ability to use educational software to design and produce multimedia classes. Such remarkable achievements earned Dangzhai national fame and inspired other rural schools (Peng, 2007). In July of 2006, National Counsellor Cheng Zhili and Minister of Education Zhou Ji inspected Dangzhai Middle School (Peng, 2007).

Chemistry Teacher Training in Pingchang, Sichuan Province

In contrast to Dangzhai Middle School strikingly, the school-based training in Pingchang County failed to enhance teachers' general quality effectively. It became a formality to cope with the demands of higher authorities, from which little concrete benefits were generated.

Pingchang, one of the 592 counties whose per capita income was below the national poverty line, is located in a hilly region of Sichuan Province. Most of the 103 chemistry teachers in the county's junior high schools secured their teaching positions after years of teaching in elementary schools. They obtained required education criteria mainly through attending distance courses offered by Radio and TV Universities, which were extremely popular during the last two decades of the 20th century. 66% of teachers belonged to the cohort of 45 to 60 years of age because new university graduates were reluctant to work in remote rural schools. Although they had

Table 4 : Statistics on Short-Term Training

	Prefecture	County	School District
Training level	5 %	74 %	21 %
Training organizer	8 %	73 %	16 %
Training location	17 %	61 %	22 %

rich teaching experience, their knowledge in subject matter and educational pedagogy were out of date. In-service training is urgently needed for these teachers (Liu, 2008).

Pingchang teachers' professional development is largely provided through two channels : county training and school-based training. As Table 4 above shows, few teachers had opportunity attending classes at or above prefecture level, and school district did not play an important role in training.

School-based training is a newly implemented teacher professional development model in Pingchang. Because of the strict requirement and repeatedly emphasis of higher authorities, all junior high schools in Pingchang formed a leading group in charge of teacher training. School-based training was carried out primarily in 4 forms, ranged from attending open class (37%), holding professional activities in individual departments (32%), reviewing model courses (11%), to organizing research topic discussion (7%). Although nearly 25% of teachers were eager to learn educational technology implemented by the DEPRS, schools paid little attention to the topic. In 2007, 43% of chemistry teachers never put their fingers on computer, and only 10% of teachers were able to operate educational software (Liu, 2008).

Chemistry teachers' estimate of the county and school-based training outlined a bleak picture. Nearly a half of teachers (45%) denied the significant part that county training played in improving their teaching performance. The main causes were indentified as lack of training materials suitable to rural schools as well as dull and repetitive training activities. These teachers named two other factors that diminished their interests in the county-organized training. First, the heavy workload left them little time for intensive class work. Moreover, the training organized by county charged both schools and trainees a quite high fee, making such training undesirable.

School-based training has great potential to become the most effective and popular mode in rural China because of a number of reasons. First, as an on-going training, it takes place inside school, with flexible timetable, and therefore reduces the interference of teachers' routine work to the minimum. In addition, training activities are organized specifically in responding to teachers' demands and needs, being able to best combine theoretical learning with practices. Last, it has the lowest cost in comparison with other forms of training. In Pingchang County, nevertheless, school-based training was merely a formality; little concrete accomplishments have been archived.

Most chemistry teachers (79%) supported this training model, but more than half of them (57%) lowly rated its practice in their own school as "a means of coping with the inspections of superior authorities" (Liu, 2008). Over 30% of Pingchang chemistry teachers complained about lack of expert guidance in school-based training. Although over 80% of junior high schools in Pingchang were equipped with a multimedia room with internet connection, only 5 schools (19% of total secondary schools) pursued cooperation with local teacher colleges via distance learning tools that were installed by DEPRS (Liu, 2008). Suggestions have been made to facilitate school-based teacher training in Pingchang

through a hierarchal network of schools, school district, county and provincial normal colleges/universities. Every level of the hierarchy is linked with another through distance learning tools. This network will allow school teachers to benefit from expertise at higher educational institutions (Liu, 2008)

G County Teacher Training, Hebei

The case study of G County has suggested that in some regions of China, county training schools are no longer able to meet the training demands of teachers relying on its own teaching staff or recruited experts on temporary basis. It proposes to develop school-based training in economically slowly growing rural regions. In addition, the persistent collaboration between individual schools and training agencies is viewed as a solution to the problem. If we read case study #2 and the present one together, we have realized that for subjects such as chemistry, physics, history… in which few teachers of each junior high school specialize, horizontal and vertical collaboration via distance educational means should be greatly emphasized.

G is an agricultural county, whose per capita income stays at lower-middle level of the nation. By the end of 2007, the county had in total 2,052 teachers employed at 135 primary and secondary schools. 43.1% of teachers held university degrees and 33.3% held college diplomas. 78.4% of teachers were under 50 years of age. In-service teachers' training was mainly charged by the county teacher training school. Neither school-based training, nor distance learning tools installed by the DEPRS played a key role in teacher's professional development (Wang, 2009). The training sessions provided by the county training school were far from satisfactory. This conclusion is based on the feedback of 316 teachers whose educational criteria, age, and gender are typical of the school teachers in this particular G County.

More than half of the teachers (54.5%) surveyed considered the content of training as out of date, which paid little attention to these new educational pedagogies and new methods. Nearly 70% of informants complained about the training "being not related to their teaching practices closely". 52.1% of teachers claimed that too much emphasis is laid on courses in professional integrity and abstract theories. About 65% of the teachers demanded for courses in educational technology and comprehensive knowledge, which are deadly downplayed by the training institution. Over 66% of the teachers here stated that no test is held by the end of the training, and 64% of them denied to have gained much from training (Wang, 2009).

An interview with the president of Teacher Training School of G County demonstrates that the school was no longer able to meet the qualification upgrading requests of teachers who largely held a college diploma already. By the end of the 1990s, county training school had been instrumental to promoting rural teachers' educational criteria to meet the government requirement. Now it largely offered short-term training sessions on different topics. The president was not satisfied with the structure of training either, considering it to have given improperly close attention to theories, but neglected to combine book knowledge with classroom practices. The reason, according to him, was that few trainers were qualified for offering such courses (Wang, 2009). Furthermore, most school teachers had no strong motive to learn when the training could neither upgrade qualification, nor being directly related to promotion.

Proposals were made to switch emphasis from county training school to individual schools, which should organize consistent and routine activities to facilitate teachers' ability. Suggestions were also made to relegate the main training responsibility to the school backbone teachers; their rich experiences were considered a much more invaluable asset than the empty theories provided by the so-called experts who knew little about rural teaching and learning. Individual schools, as training organizers, should forge collaboration with training agencies at various different levels and formulate an appropriate training plan based only on the conditions of their own teachers

(Wang, 2009). In addition, there is some misconception which prevails in many areas of rural China in which teachers see a degree or diploma as the only thing important, neglecting to promote teachers' actual ability. Teacher training in schools and colleges became a place where trainees sought for a higher degree by all means. When there was no degree, diploma or certificate involved, the teachers paid little attention to training, which they attended mainly to cope with pressure from above (Wang, 2009). Since teachers' active participation is crucial for training quality, they must be truly aware that professional development is aimed at improving teachers' overall capacity and teaching ability, whether their qualification is upgraded or not.

Ningde Prefecture, Fujian Province

Ningde case is provided as a model of collaboration among educational institutions of different levels relying on internet. It is practiced in economically fast-growing rural regions currently, but has potential to spread across the country in the future. Problems originated from teachers' utilitarianism and loose management on the side of training providers, however, have impaired the training effectiveness and sometimes turned training into a mere formality.

Ningde Prefecture is located in eastern Fujian Province, one of the economically fast growing coastal regions. The statistical data issued in 2006 showed that of all primary school teachers (16,007), 48.3% held college diplomas or university degrees; of 12,634 secondary school teachers, 98% had college diplomas, university degrees or higher education. In addition to better educational criteria, the majority of teachers (67.7%) fell to the age cohort of 26 to 45 (Lin, 2008). In comparison with rural teachers in Western China, Ningde school teachers were able to grasp the ICT skills relatively fast, and should be willing to update their educational pedagogy and carry out curriculum reform.

In Ningde, teachers' training was mainly organized by Ningde Teachers' College and county teacher training schools. Training for the secondary school backbone teachers and school principles was carried out in Ningde Teachers' College, whose expertise and facilities were at the higher level. The county training schools were catered to primary school teachers and new hires in secondary schools specifically. Since 2006, most county teachers' training schools signed contract with the Distance Education Faculty of Fujian Normal University, organizing training sessions drawing upon the online courses delivered by the latter (Lin, 2008). In addition to individual study at school or home, group tutorials were arranged by county training schools during weekend and summer/winter vacations. Table 5 below shows the number of teachers who attended distance training sessions in each county in 2006 and 2007.

Table 5 : Ningde Teachers attending Online Training in 2006 and 2007

County	2006	2007	County	2006	2007
Jiaocheng	4569	4149	Zhouning	2058	2125
Fuan	-	-	XiaoPu	4387	-
Shouning	1541	-	Pingman	1891	2103
Gutian	1092	-	Fuding	5346	5251
Shirong	1023	886			
			TOTAL :	21907	15212

Of the total 28,641 school teachers in Ningde, more than 50% were involved in online learning.

Although online learning began to play a crucial role in Ningde teachers' training, research revealed that existing problems reduced training effectiveness. The feedback of 300 Ningde teachers surveyed demonstrates that over 30% of them attended online sessions reluctantly. Interviews with directors of county training schools further indicate that many trainees saw professional training as a task imposed on them from above. Without incentive to learn, they attempted to finish the course with little efforts. Some found someone else to work online in place of them, and others stayed online while not learning. The possibility of separating visual learners from physical learners prevented training institutions from keeping track of learning activities effectively. Ningde research implies that cheating became a common phenomenon partially because county training schools did not hold invigilated examination at the end of the training. Some training graduates in fact "knew nothing about the course" (Lin, 2008). Another study on distance training for DEPRS school principles has analyzed similar problems.

From December 2008 to January 2009, the National Center for Educational Technology offered a distance training session to 20,000 DEPRS school principles located in 20 provinces and autonomous regions. Since no diploma was provided, participants were not self-motivated and they employed different means to cope with the trainer. For those who knew little about educational technology, they normally sent school ICT staff to work online in place of them; for those who were familiar with internet but not interested in training topics, they opened the webpage upon request, moved mouse around once a while, but paid little attention to the course content; for those who attended the session with intention to finish it as easily as possible, they never asked questions, and finished assignments following those posted in course forum with litter alterations (Liu & Su, 2010).

While openness and flexibility, the key characteristics of distance learning, have overcome the barriers created by spatial and temporal distance, allowing many to have the learning opportunity that is denied them otherwise, the relaxation of management could damage education quality. This is a common problem that international distance educators have faced. Yet, its seriousness should be emphasized in China specifically because China's rapid economic developments are featured often by evasive creativities.

The inefficiency of distance teacher training in Ningde was evidenced by the declining number of teacher trainees. Table 5 above shows a 30% decrease of trainees in 2007 in comparison with that in 2006. 57.1% of rural teachers complained about lack of well-maintained facilities. A fairly large minority of teachers did not own personal computers, and the space of school computer room was limited. Furthermore, the speed of networked internet in many rural schools was often too slow to support the training session. In addition, 15.8% of teachers surveyed expressed concerns to the poor management of training. In their opinion, the ineffective supervision and administration of online training could not ensure quality learning (Lin, 2008).

3. RESULTS :

Our study of the training effectiveness mainly focuses on two aspects: the programs aimed at improving teachers' general ability through distance education, and those specifically launched to facilitate teachers' ICT capacity.

Distance education played a key role in teachers' qualification upgrading. By the end of 2002, 3.3 million students had earned diplomas or degrees from the Central Radio and Television University System, accounting for 12.7% of total high education graduates in the same period of time throughout China (Duan, 2008). An overwhelming majority of rural in-service teachers upgraded their educational criteria via distance means (Radio/TV) and on-site training over the last two decades. Table 6

Table 6 : Qualification Improvement for 103 Teachers in Pingchang County

	below High Sch	High School	Community College	University	Graduate School
Before Training : %	0 %	53 %	36 %	11 %	0 %
After Training : %	0 %	0 %	72 %	28 %	0 %

Table 7 : Qualification Improvement for 400 teachers in H County

	below High Sch	High School	Community College	University	Graduate School
Before Training : n (%)	36 (9%)	182 (45%)	118 (30%)	64 (16%)	0 (0%)
After Training : n (%)	2 (1%)	53 (13%)	177 (44%)	162 (40%)	6 (2%)

drawn from Liu (2008) shows that all middle school chemistry teachers in Pingchang County of Sichuan Province had improved their qualifications to attain the state required standard.

A survey of 400 rural primary and secondary teachers in H County of the same province has similarly revealed the significant enhancement of in-service teacher's qualifications (Table 7, drawn from Zeng, 2006).

There is no inclusive survey to reveal the overall number of rural teachers who draw upon the online course materials offered by the Web Union and Continuing Education Website for professional development. Yet it is safe to suggest that the majority of rural teachers have not been benefited from the large numbers of online courses for the following reasons. First, the DEPRS has not provided a computer room for most rural elementary schools, and many rural teachers in economically slow-growing regions cannot afford for PC and internet service at home. Second, for the middle schools located in economically under-developed west and central China, although a computer room with internet service is set up, these equipments may not be well maintained due to lack of funding. Official assessment indicates that by 2007, most training centers at county level were unable

to support teachers' online learning efficiently (Song, 2008). Except for a few coastal provinces, ordinary rural teachers in China have access to high-quality distance training mainly through the national summer projects.

In addition to obstacles created by infrastructural and technological inadequacy, other problems have restrained the training effectiveness as well. County and school-based trainings are the only training models that allow most rural school teachers to have access with low cost and minimum increase of workload. In most parts of China, however, they apparently do not practice sufficiently due to a number of factors. Study cases of Pingchang indentified lack of vertical collaboration among educational institutions as a major problem, suggesting institutions of different levels to join force relying on distance educational means installed by the DEPRS. G County case suggests to enhance school backbone teachers' role in training. Ningde case cites teachers' utilitarianism, credentialism and training agency's relaxation of management as another major problem.

Also, the study conducted in Liuan Prefecture of Anhui Province names lack of workplace cooperation as one of the main causes for the failed school-based training.

Under the current educational system, the fame of a school relies on the grades that students earned when they enter the higher level. A teacher's promotion, benefits, awards or contract renewal are decided by the examination marks of students he/she teaches. The system leads to keen competition among teachers in the same subject. Little collaboration exists among teachers of different subjects either. School authority allocates more funding and time to the main subjects which carry more weight in the entrance examination for the higher level of schools. The teachers of minor subjects are marginalized consequently. Without a cooperative climate, many teachers are reluctant to attend their colleagues' classroom activities, even less willing to review their colleagues' class planning. Occasionally when open classes were held for feedback, few teachers intended to give their opinions (Ho, 2009).

Although the implementation of the national project to facilitate teachers' ability in educational technology is behind the schedule, ICT training is better carried out at different levels. At the provincial level, the Hubei program is successfully implemented, evidenced by estimation results. The evaluation of the program comprises of three components: a) operation evaluation, b) impact on trainees, and c) experts' marking based on review of a) and b). The program receives a mark of 87.56% from experts (He, 2008), and the following Table 8 shows that the program

facilitated teachers' capacity in educational technology substantially. 980 teachers attended the training cession. Except for one, all these have successfully finished the training. 128 trainees have received first class grade that is based on examination and participation. As Table 8 below indicates, the trainees' capacity improvement is on average over 25%. Microsoft Office Software here included Word, Excel etc, and Course Design Software included Photoshop, Powerpoint, Flash, Sketchpad, Premiere, and Coldwave.

In comparison with training in teachers' general quality and teaching capacity, county and school-based ICT training is apparently better carried through as well, as demonstrated by the study case of Dangzhai Junior High School. There is other research showing quite positive results as well.

An investigation covering 332 teachers at model three schools was conducted in five economically underdeveloped provinces and autonomous regions. 60 teachers surveyed were in Ningxia Hui Minority Autonomous Region, 52 in Sichuan Province, 62 in Tibetan Autonomous Region, 60 in Inner Mongolia Autonomous Region, and 98 in Shaanxi Province. 69.28% of total respondents (230) indicated that ICT training sessions were held in their schools. Out of the 230 teachers that went through school-based training, 32% agreed that training helped their teaching to a great deal, and 58% believed that it was somewhat helpful. About 60% of the 230

Table 8 : Capacity Growth in Software Basics and CAI Design

Microsoft Office Software	Good	Average	Poor
Before Training : %	30.4 %	n d	n d
After Training : %	58.5 %	22.8 %	18.7 %
Course Design Software	Good	Average	Poor
Before Training : %	20.2 %	n d	n d
After Training : %	56.6 %	20.5 %	23.9%

informants stated that the training was organized in a systematic way and 56.52% confirmed that a test was held at the end of training. Among the 102 teachers never attended school-based ICT training, 75.59% pointed out that their schools had made plan to offer such training in the near future (Xue, 2009).

Another study taken place close to Lanzhou Municipality in Gansu Province issued similar research results. 89.7% of the 370 primary and secondary school teachers under survey confirmed that they had attended school-based training. Most of them highly rated such training in improving their capacity in educational technology, while denying the significant impacts of short-term on-site training (Guo & Su, 2008). Consistent and handy assistance is crucial to the beginning learners, according to the research. Only school-based training can offer such convenience.

An investigation undertaken in Anhui Province has compared the training effectiveness for different DEPRS delivery models. Questionnaires were distributed among a total of 600 school-teachers, head teachers, and educational technology personnel scattered in 17 prefectures within the province. Out of a total of 528 respondents, 19.8% came from model one schools (equipped with DVD disks), 14.1% from model two schools (equipped with satellite TV and model one tool), and 58.2% from model three schools (equipped with computer/internet and models one/two tools). The rest 19.8% of the informants worked in other educational institutions or city schools. There were 68.9% of informants who confirmed that strict rules on school-based training in ICT had been

formulated and rewards as well as punishment enforced to create a policy environment for DEPRS training (Jia, 2007). As Table 9 demonstrates, an overwhelming majority of teachers in model one schools were able to efficiently operate the educational tool. In model two schools, teachers' performance was much less optimistic, and teachers in model three schools performed better.

Collaboration with higher educational institutions is often crucial to the success of school-based training, from which schools obtain expertise that their own teachers are unable to provide. Hebei Normal University sent its senior ICT students to rural schools acting as trainers. This experience was considered as students' graduation placement. Students were divided into small groups of two to three, and sent to over 100 model three rural schools in Hebei Province for a period of 30 to 45 days. The relatively long time period allowed teacher trainees time to digest and incorporate what they learned with classroom instruction. Similar to provincial program, training was designed in consideration of the actual ability of teachers as well as their needs and demands. Subject teachers received training in three different levels of class—beginning, intermediate, and advanced—based on their capacity in educational technology. Assessment of teacher trainees at the end of the training session displayed remarkable accomplishments. In Dengzhuang Junior High School, for instance, merely 13 out of more than 100 teachers were able to design multi-media courses before the training. After the training, 95% of teachers were able to independently undertake the task (Wang, Zhang & Ma, 2009).

Table 9 : Comparative Statistical Data on Teachers' Performance

School	Excellent	Good	Passable	Poor	Very poor
Model One	51 %	29.8 %	19.1 %	0.0 %	0.0 %
Model Two		28.0 %	46.0 %	22.0 %	4.0 %
Model Three		64.4 %	26.0 %	9.6 %	0.0 %

Problems however exist in teachers' ICT training as well. Some provinces one-sidedly seek to meet requirements laid out by higher authorities, paying little attention to local circumstances. For instance, 90% of primary schools in rural Yunnan Province are not equipped with computers. Yet the teacher-training scheme formulated by the province requires all teachers complete the educational technology course (beginning level) developed by the Ministry of Education, that heavily focuses on computer basics. Detailed plan is drafted to accommodate schools where computers are scarce, ensuring teachers to finish study successfully (Yunnan Center for Educational Technology, 2009). There seem, nevertheless, little worries about how teachers apply hard-learned knowledge to classroom instruction if they have no access to computers.

Research conducted in Anhui Province exhibit a similar situation. Teachers were required to master all three education tools regardless of the local conditions of equipment (Cheng & Cai, 2009). Furthermore, because of the amount of time involved in course preparation and scarcity of teaching resources as well as equipment, the application of the three delivery models in classroom instruction was far from a common practice. Table 10 below drawn from Jia (2007) indicates that in the DEPRS rural schools of Anhui Province, a large number of teachers either never or seldom used new technology in teaching.

4. CONCLUSIONS :

A multi-level network consisting of national, provincial, county, and school-based training has been established in China for teachers' professional development. Most rural primary and secondary school teachers have attained the educational criteria set up by state through attending radio and television universities. Rural teachers' capacity in educational technology has improved over the last several years. Yet as this paper shows, the third generation of distance training—internet—has not played a vital role in rural teachers' training. Even more important, the lack of collaboration between the individual schools and higher training institutions in offering teachers' non-degree general training has reduced training effectiveness in many regions. The one-sided seek for a higher degree or promotion on the side of teachers is certainly responsible for the problem as well.

Like in many other countries, Chinese rural teachers face the serious challenge of applying what they learned in training to classroom instruction. The low application rate of educational technology in classroom teaching is not caused by lack of equipment alone, other factors have contributed to the problem. Rural teachers' heavy workload restricts them from designing multi-media courses, which is time consuming. Grade-oriented education system encourages teachers to continue with the traditional methodology that they have been familiar as pedagogical innovation may lead to students' poorer performance temporarily. Scholars believe that school-based training has potential to provide solution to the problem. As an ongoing practice charged by school principle, this training mode helps create a climate in favour of pedagogy innovation and curriculum reform, providing a favourable environment for the

Table 10 : Frequency of Applying the Educational Models into the Classroom

| | number of classes per week | | | | |
	0	1 - 3	4 - 6	7 - 10	over 10
Model One Teachers	17.0 %	51.0 %	17.0 %	8.5 %	6.4 %
Model Two Teachers	20.0 %	50.0 %	14.0 %	8.0 %	8.0 %
Model Three Teachers	9.6 %	43.0 %	18.3 %	12.5 %	16.3 %

teachers to apply the new knowledge and skills that they learned either online or on-site to classroom instruction. The school authority, nevertheless, needs to pursue policies urging cooperation among teachers, creating a structure to improve the application rate of new educational pedagogy, updated teaching methods, and advanced technology. In Dangzhai, for instance, the enthusiasm and eagerness of employing multimedia materials in the classroom are largely inspired by the policy of sharing these course materials among the school teachers involved.

In comparison with programs launched to enhance teachers' ICT skills, trainings targeted at promoting teachers' general quality and teaching capacity seem to face a greater challenge. Researches have provided successful models in ICT training ranged from provincial program (Hubei case), school-based program (Dangzhai case), to collaboration among educational institutions (Hebai case), and solid statistic data have explicitly indicated the ability improvement of teachers. On contrary, we have found little evidence to demonstrate successfully implemented distance training mode in promoting teachers' general quality as well as teaching capacity. Although school-based training has been recommended as the most proper model for rural teachers' professional development and numerous proposals as well as suggestions have been made to facilitate its implementation, we need time to test their effectiveness.

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