Modern distance education project for the rural schools of China: recent development and problems

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Abstract

The Modern Distance Education Project for the Rural Schools (MDEPRS) of China has a wider scope and serves a larger population than any other informational project in the world. It likely will result in a far-reaching informational revolution for basic education in China. Here, we introduce three main innovative models of material delivery, the recent developments of MDEPRS, and the problems associated with this project. We then fully discuss strategies for optimizing this project, such as establishing reasonable goals and directions, restructuring its major components, improving the delivery models and digital contents, sustaining its development, conducting better financial audit and project evaluation, and increasing community participation and financial investment.

Keywords

digital divides, ICT-in-education, modern distance education project for the rural schools (MDEPRS), satellite resource receiving.

Introduction

The ‘digital divide’ frequently discussed in the Western world exists in China as well. The ‘digital divide’ increasingly affects economic, political, and social progress in China, and has thus become a major obstacle to China’s advancement into the information age (Hu 2002).

The development of education is a critical component of a comprehensive strategy to bridge these divides. The insufficient investment in educational development in the mid-western region, particularly in the rural areas, has impeded economic development. A downward spiral is fueled by low productivity, low demands for modern technology, lack of high-quality human resources, low emphasis on improving human quality, and limited material resources. All of these factors increase the digital divide and hamper investment in education; in turn, the lack of educational investment helps to perpetuate the other deficiencies.

China is confronted with a major challenge in reducing the gap in educational resources, beliefs, methods, and systems between its eastern, southern, and western regions. Bridging these gaps will improve the economic interaction among the local areas of these provinces, and will increase the utilization of information technology in education. In September 1998, China initiated its Modern Distance Education project, which focused on developing network-based distance education in many of the leading universities. In the following 6 years, the number of online programmes has increased from 4 to 68, and the online programs are distributed into 153 disciplines/majors. The number of online students enrolled in these programmes has reached 2 500 000. The development of the Modern Distance Education project has not only advanced the goal of widespread access to higher
education but has also helped China discover models and methods of using modern information technology to speed up the development of educational methods and infrastructures. For instance, because of this project, broadband networks, and digital satellite networks have been established all over the nation (MOE 2004).

Under the momentum of developing the western regions and the successful implementation of this Modern Distance Education project, modern distance education technology has become a valuable tool for the government to further develop China’s rural education. In 2003, China’s Ministry of Education (MOE) decided to invest about 10 billion Yuan in the Modern Distance Education Project for the Rural Schools (MDEPRS) (2003–2007), the largest information technology project in China until today. With this strong financial support, this project aims to improve K-12 and vocational education in rural regions, and to stimulate the social and economic development of these regions.

The development of MDEPRS

The Modern Distance Education Project for the Western Rural Middle and Elementary Schools (MDEPRS) represents one type of project that aims to develop education in rural China through modern distance education technologies such as computers and satellite-receiving stations. MDEPRS originated from a project named ‘Preparing Tomorrow’s Female Teachers’. This project established 1040 distance-education receiving stations in the six provinces of the western regions: YunNan, GuiZhou, SiChuan, ShanXi, GanSu, and GuangXi. Each receiving station includes one computer and one set of satellite-receiving equipment, and the project has trained more than 1000 female teachers (MOE 2000).

In 2002, China’s MOE and the Li Jia Cheng Foundation collaboratively launched the ‘MDEPRS’. The project first started in Guizhou Province and in Tibet’s Lasa, and it geared towards the following: (a) alleviating the deficiency of modern distance education in Western China, and (b) preparing teachers for the better development of distance education in these areas. By 2003, 10,000 educational demonstrating centres were established to receive satellite-based educational programmes; media centres were built for 5000 elementary schools, and 5000 sets of up-to-date CD-ROM courseware were distributed to rural secondary schools. After a 2-year implementation, the project has passed the final evaluation conducted by China’s National Center of Educational Technology (NCET 2005).

In November 2002, with the approval of China’s State Council, the MOE launched a demo project for the MDEPRS. In 2003, the State Council approved the pilot implementation of the MDEPRS in western and middle provinces including HeBei, SanXi, Inner-Mongolia, LiaonNing, JiLin, HeLongJiang, AnHui, FuJian, JiangXi, SanDong, HeNan, HuBei, HuNan, GuangXi, HaiNan, ChongQing, SiChuan, GuiZhou, YunNan, ShanXi, GanSu, NingXia, Tibet, XinJiang, and QiangHai. These pilot programmes aim to equip 110,000 rural primary schools with basic CD players and complete sets of CD-ROM instructional materials, providing 5.1 million rural pupils with high-quality educational resources in 5 years. The programme also intends to build satellite-receiving centres for 384,000 rural primary schools, which will supply 81.42 million rural pupils with high-quality learning resources. Additionally, this pilot programme plans to equip the classrooms with computers for 31,090,000 students in 37,500 rural secondary schools, gradually providing them with access to educational resources similar to the access now enjoyed by the 3,950,000 students in urban schools (MOE 2003).

After 2 years, 291,631 CD/DVD–TV playing centres, 167,113 Satellite resource-receiving stations, and 25,389 computer classrooms were built in the western region, covering 168,793 rural elementary schools and 30,239 rural junior high school schools. By March 2006, the project had achieved nearly 60% completion, and the project is proceeding in the 2006–2007 phase, on schedule for completion in 2007 (Chen 2006).

Over the long run, carrying out modern distance educational projects for the rural schools will greatly enhance the ‘Two Basics’: Basic Knowledge and Basic Skills, which are required for one to survive and live productively in many underdeveloped areas. This enhancement will be accomplished through (a) promoting the exchange and sharing of good educational resources among many areas and (b) better developing the rural areas by minimizing their social, economic, and educational differences from the urban areas. The distance education demonstration centres of MDEPRS serve as venues that enable the western rural areas to make use of the better educational resources from the

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eastern, southern, and central cities. This interactive model in educational development will help to eliminate the ‘digital divide’ and thus balance the development of China’s educational system.

**The three technology models in MDEPRS**

The underlying pedagogy of MDEPRS is to form a primary informational environment that will facilitate the sharing of high-quality educational resources, thus promoting the development of education in the rural areas and helping to eliminate the many divides between urban and rural areas. And this project has adopted the following three pragmatic approaches regarding technological use in teaching and learning (MOE 2003).

**MODEL 1: establishing CD/DVD-equipped teaching centres**

The hardware configuration simply includes TV sets, DVD players, and instructional CDs, which can play a variety of CDs, VCDs, and DVDs. Because all three media are inexpensive, the costs for setting up these centres are therefore relatively low. This configuration is mainly for rural schools that must be preserved during the educational re-planning in the rural countryside. Figure 1 shows a schematic view of the technology configuration. By playing instructional CDs on TV, these centres can deliver courses and learning materials directly to the classes of rural elementary and secondary schools.

**MODEL 2: building satellite-receiving stations**

In central elementary schools in small towns (Xiang Zhong Xin Xiao Xue) or ‘complete’ elementary schools in village (Cun Wan Xiao), this project mainly builds satellite teaching-receiving stations. These stations are equipped with satellite-receiving systems, computers, televisions, DVD players, and instructional CD-ROM courseware. Through the China Educational Satellite Transmission Network, these schools can quickly receive large amounts of high-quality educational resources and immediately use them in teaching. The structure of this delivery model is displayed in Fig 2.

Besides including the hardware and software configuration in the first model, this satellite–Internet delivery model also supports the broadcast of live or recorded audios of appropriate programmes from the China Education TV network. Teachers can easily incorporate these programmes into their teaching, by playing these programmes on TV sets or on computers. Ideally, trained educational technologists can help teachers to prepare technology-assisted lessons, to develop teaching and research activities, and to learn how to use these technological tools. For the students, this project provides every elementary school with computers to support their classroom activities and to develop their digital literacy skills. In addition, the satellite teaching-receiving stations can also broadcast instructions that will help address many of the agricultural issues which are common in the countryside.

**MODEL 3: building computer classrooms**

For rural junior high schools (ChuZhong), the project equips multimedia and network computer classrooms with satellite-receiving systems, DVD players, and instructional CDs. The model is shown in Fig 3.

Compared with the first two models, the third model is the most expansive in its plans for designing,
developing, and delivering instructional materials to the end users. Accordingly, implementing this model can be beneficial in several ways. First, instructors can create courses that develop children’s information literacy skills, so that they can better access, search, and use the wealth of information available on a variety of media. Second, high-quality teaching resources available in the educational network can be collected for easier access and use. Third, this model can help students develop self-study skills in the networked environment. Fourth, through regular teacher training and engagement in action research, teachers can be encouraged to collaborate in preparing lessons in the networked environment. Fifth, agricultural schools should be established to provide residents with on-the-spot education and information, such as information about different cultures and practical skills of living in rural areas. This project can contribute to the overall development of the rural society, by providing rural residents easy access to the Internet and by supporting their information exchange among each other.

Problems and reflections

In the light of the number of participants, MDEPRS is the largest information project in the world (Li 2005). It serves a larger population than any other similar projects, and therefore will likely start a far-reaching informational revolution in China. At present, the pilot stage of this project is complete, and the large-scale implementation is proceeding. To ensure the success of this project, it is critical for policy makers and administrators to realize that building hardware and any other physical infrastructure is only the first step of
any distance-learning project. The next big challenge will be how to make full use of these facilities, with sustained replenishment of resources and human resources, and how to integrate distance educational programmes into the current rural schooling systems (Yu 2005b). Without addressing these challenges, a one-time investment in hardware will be a huge waste of time and money. The future direction of the distance educational project in rural China is still an intriguing issue to ponder. Following are a few reflections based on the authors’ involvement in implementing this project.

Aims and directions of MDEPRS

The development of distance education in rural areas faces several major challenges. For example, research must be conducted on ways of better integrating traditional and distance education in these rural areas, from technology to pedagogy, from instructional resources to human resources.

At present, the content of the distance learning materials are primarily exemplary lecture notes and video recordings of experienced teachers and learning activities taking place in urban schools. Considering the dearth of instructional materials and teachers in the countryside, these materials can be helpful. But they must be adapted to suit the particular needs of rural schools. Because these students live in less modernized areas, their prior knowledge and abilities differ a great deal from students in the cities. Clearly, the rural areas need human resources and instructional materials that fit their unique living and teaching environments. Because living conditions and lifestyles in urban and rural areas in China are drastically different, distance education for the rural schools must develop its own systems and features that meet the unique needs of this student and teacher population.

To avoid the redundancies between the educational contents used in MDEPRS and in the current classroom educational system, the MDEPRS should create content for subject areas in which rural traditional education is weak, such as information technology, English, and Art. In addition, MDEPRS can play a key role in fostering more experienced teachers and providing study materials for the rural teachers to continuously develop their knowledge and skills.

In addition, the MDEPRS should not only enhance the Nine-Year Compulsory Education in rural areas but also help provide more vocational training. Functioning as the driving force from modern social, MDEPRS can help to bridge the many divides between rural and urban areas. It can play a key role in rural education reforming, accelerating all-around social development, improving people’s incomes in countryside, and boosting the paralleled development between urban and rural areas.

At present, schooling in the rural areas simply follows the system in the urban areas, in which a child spends 12 years in ‘primary school–junior middle school–high school’ and then takes a national exam to enter colleges and universities. This system, although operating well in the cities, has caused serious social and economic problems for the rural areas. The shortage of higher-educational institutions results in only a small percentage of the high-school seniors continuing their higher education. The rest of the students are ‘cast away’ to the society, either entering the low-pay workforce or waiting for jobs while being unprepared for any real work. Meanwhile, township enterprise and urban manufacturing industries have a shortage of competent employees, especially those who have both management abilities and certain technological skills. From a pedagogic perspective, distance education provides a powerful venue for ‘transmitting’ knowledge and information from the cities to the countryside. If it can bridge the skill difference between rural and cities by promoting rural vocational training, it will be a breakthrough in China’s educational history.

Second, the current personnel in the rural educational departments, being geographically and digitally isolated from the outside world, have limited exposure to new development and cultures in the cities and are therefore confined in their ways of thinking. As a result, most of them, considered the elite of culture and knowledge, have not played active and positive roles in promoting educational innovation. This situation calls for more professional development opportunities for these rural elites, so that they can stay up-to-date with educational and technological development and serve the rural communities better.

Educating the ‘migrating population’ (as known as ‘Mang Liu’)

Even today, residents are still not allowed to move freely within China. Every city resident must carry a
government-issued identity card, somewhat like the US’s permanent resident card. However, the rapid growth of many big cities has attracted a large number of temporary laborers from the rural areas. As a result, a ‘tidal wave’ of migrant workers has relocated to the cities for temporary work. They live in big cities as temporary workers but are not considered residents in these cities. There are drastic differences between urban and rural lives in most areas of China, especially in income levels, quality of life, opportunities for personal and financial growth, quality of education, and ways of living. They therefore are excluded from these cities’ social, economic, and educational planning.

With the growth of the migrating population, ‘rural areas’ in China are no longer defined in a geographical sense. To some extent, the term ‘rural areas’ now refers to the entire undereducated and underrepresented groups from the countryside, no matter where they live. Therefore, when implementing any educational reform, educators and educational reformers must develop educational programmes and materials for two groups of people: (a) children of the migrant industrial workers, who are living in rural areas and (b) the industrial workers themselves who grew up in rural areas but are living in cities. The first group needs better K-12 education, while the second group needs better continuing education because many of them did not complete their obligated K-12 education. Compared with the farming population back home, these two groups are exposed to the rapid socio-economic development in modern cities, and are eager to learn new knowledge and skills. A better education for them may help to solve the many social, economic, and infrastructure problems currently existing in both cities and countryside. Considering the migrant workers’ low social status and lack of access to continuing education, they should become one of the main targets of rural distance education (Yu 2005a).

In addition, these migrant workers need counseling programmes to help them cope with the social and psychological challenges of living in cities. Most of these workers are bright and open-minded, and are actively seeking a better and meaningful life. Although many of them will spend their prime physical years (20–45) to help build the modern cities, they are still treated as ‘outsiders’ and are ostracized by the urban communities. They are viewed as ‘migrants’, rather than permanent residences, and they can be replaced by younger and stronger workers and driven out of the city without any social security.

Both the education and livelihood of the migrating population deserve more attention, so that they can be transformed from ‘burdens’ of the cities to rich human resources for the countryside. The government and educational agencies should take actions to provide these migrant workers with opportunities for continuing education, with appropriate vocational training, and with social and legal support. For instance, some of them can grow into experts, who are knowledgeable about lives in both urban and rural areas, and who can be powerful changing agents for the rural areas. In the meantime, members of the migrating population should be encouraged to make full use of their knowledge and skills, and to secure a better future for themselves. In other words, preparing migrating workers to be the change agents should also bring them social and financial securities. Currently, many of them work hard in the cities during their prime years, but can change to a ‘useless and unstable’ group with poor health and financial situation, on reaching an older age.

In summary, rural modern distance education should not focus exclusively on students who reside in the rural areas. Training of the migrating workers can be important too. Rural modern distance education cannot ignore this important and critical mass simply because it is geographically separated from the rural areas. Instead, a series of policies should be in place to require local governments of the cities to provide the migrating population with better educational opportunities and other critical support.

Focusing on application of technology and not technology per se

At present, the three models of distance education delivery – multimedia centres, satellite-receiving centres, and computer-equipped classrooms – still focus heavily on the configuration of technology facilities. The technology advocates assume – that ‘when you build it, they will use it’. However, the reality is often the opposite. Too often, ‘when you build it, they don’t use it’. A successful implementation relies on the coordination of many factors, such as teacher training, student preparation, resource
management, the appropriate use of technology in teaching and educational administration, and the adoption of new teaching methods. As He (2005) reported in his article about China’s distance education, although seven schools of Jinta District of Pingliang City, GanSu Province, have built satellite-receiving centres, most teachers do not use them and do not know how to use them. In some cases, teachers in some of these schools do not want to use the technological equipment because of the high cost of electricity. In some other cases, the severe weather condition affects the functions of the equipment and their efficiencies. In Inner Mongolia, for example, the heavy gusts of wind in its huge prairie can blow the satellite-receiving antennas out of place, thus interfering with signal receiving. As a result, most of the technological equipment is put aside once people’s curiosity and excitement about new gadgets fade away.

Being technology oriented in an education innovation has in fact been a typical behaviour of the Chinese government, or maybe many other governments around the world. Allocating large amount of funds and providing hard equipment can demonstrate a government’s ‘political correctness’ and evidence its accomplishment. However, to promote and implement distance education effectively in rural areas, many other key factors need to be considered: software, proper management of human resources, proper budgeting, and fund allocation (Yu 2004). In particular, technological implementation is a systematic process that involves sequential steps rather than a short-term action for immediate effects. A short-term action often focuses only on one step, for instance, providing sufficient hardware and facilities, but then ignores the overall system and the causal relations between the different steps.

Therefore, the aforementioned three models for distance delivery need to be coupled with methods and support for effective implementation. The government needs to support educational leaders and practitioners to develop integration models and methods that are customized for local schools’ teaching and learning. To ensure the implementation success, the government will need to provide ample financial support and staffing, and to establish feasible systems and regulations. These efficient application models will need to be developed fairly soon; otherwise, most of the equipment will be obsolete and depreciated, and will require upgrades in a few years.

The development of distance education for rural schools follows a trajectory similar to the network- or web-based teaching and learning in China’s higher education. Both are now de-emphasizing technological expansions but emphasizing educational applications. For this Modern Distance Education project to be successful, it must find solutions for the typical, universal, and crucial problems that impede the overall development of the rural areas. Meanwhile, instead of adapting the educational systems to fit what the technologies can offer, technologies should be used as tools to solve educational problems.

National and local government agencies can help create models for effective technology use, but should not impose them on local schools without considering their particular teaching and learning needs. It will be much better if these agencies can withdraw their dominating roles, and advocate for educational reform instead, by promoting, supervising, evaluating, and investing in these initiatives. Educational reformers, experts who are familiar with problems in the rural areas, and administrators and educators from these local schools should work together, systematically conduct needs assessment, examine the various factors in a learning environment, and adopt an ecological approach to conceive and design efficient application models. The guiding principle is to be student and teacher-centred, and it should consider their needs.

**Fostering service market, boost continuous development**

MDEPRS cannot be a one-time hardware-building effort. Effective use of technologies to reform education should be the core of this large-scale project. The success of this project will rely on several major factors – instructional resource, instructional methods, and teachers’ professional growth. In other words, the design, development, and implementation must be systematic and holistic. While building the technological infrastructure, the government should work with local experts to generate a vision for the project’s long-term development. Therefore, this project should set aside some efforts to train local educators to be these experts, who can be in the trenches to guide and help teachers. Also, the project needs to compensate these experts and other educators who are actively involved and contributing their time and energies.
In terms of personnel development, MDEPRS needs to put local experts on its priority list and find ways to keep them in the trenches. Otherwise, these well-trained experts might seek better employment opportunities in the cities, and the training programmes will become their stepping stones for a more promising job. For instance, the project needs to build up a service market under the guidance of local governments, so that these skilled experts or change agents can receive reasonable financial compensations for their important work. A fully functioning market can create a steady flow of distance-education experts from the cities to the countryside, not the other way around (Yu et al. 2005). In the meantime, the government should not be afraid of this ‘open market’ in education. An open market can be sustaining and efficient in attracting the right people to the right jobs. The government’s responsibility is to help create this market and to promote its healthy growth. Primarily, the government funds should be distributed through natural market competition to reward competitive efforts, rather than the top-down administrative distribution.

**Improving the instructional content**

To maintain the healthy and continuous development of the MDEPRS, the export of ‘canned’ educational materials must be replaced with the creation of instructional materials that are adapted for the rural educational environment. Also, distance-education methods and materials should complement the traditional classroom education by addressing areas that traditional education could not address. For instance, distance educational efforts could focus on fostering students’ critical thinking and hands-on abilities, also on cooperating with the creation of new comprehensive skills courses, and on organizing more online collaborative activities suitable for the rural social situation. The objectives of these efforts are to help students practice theoretical knowledge, master research methods, grow their creative and cooperative abilities, and cultivate their hands-on abilities. The instructional materials delivered through distance education need to be a variety, accommodating classroom instructional needs, students’ out-of-class learning needs, and also vocational education needs.

Materials used in normal classroom instruction will be specialized multimedia resources that are strongly related to certain subjects and they can be used to develop inquiry learning and to enhance teaching effectiveness. By supporting new ways of teaching, the project hopes to transform the use of information technology from a secondary knowledge-transmitting pipeline to a tool that supports students’ active acquisition of knowledge. Thus, information technology will be used to promote students’ self-learning, active inquiry, and collaborative research. As to materials developed for after-class learning, the major educational organizations in the rural areas (e.g. the agricultural science and technology station, the institute of agricultural sciences, and the agricultural universities) should collaborate to design authentic problem-based learning activities that are closely related to rural students’ lives and their prior knowledge, and also provide multimedia resources to scaffold these learning activities. Learning through solving problems rooted in their daily lives can enable learners to better grasp the relevant knowledge, better understand the research involved, and better develop their creativity and hands-on abilities. In addition, both vocational and technical education could benefit a great deal from the support for after-class learning, because they aim to use the modern distance-education platform for the continuing education of rural teachers, physicians, and rural working people in the cities, for agricultural technology education, for market information dissemination, and for advanced cultural infiltration and construction of ‘spiritual civilization’. Moreover, this Modern Distance Education will develop and distribute resources for moral education and working-skills education that can be easily understood and grasped by rural people. For example, the vast migrating population can use instructions on seeking employment, on the basic structure of industrial society, on general legal knowledge, and other basic skills that can help them work and live in the city better.

The key for developing appropriate content for the rural modern distance education lies in the change of material sources. Major teaching and learning content should originate from work and lives in the rural areas, and educators and experts from these areas should be involved in designing the instructional content. The ‘top-down’ approach must give way to a ‘grass roots’ approach in which people in the rural areas are active participants rather than passive receivers of materials.
that were conceived for learners in other populations and contexts.

**Involving independent external evaluators**

MDEPRS is a large-scale project that involves 10 billion Chinese Yuan. An evaluation system must be in place to ensure that the funds are used properly, and criteria should be set to ensure that the project can bring positive educational, social, and economic benefits. Independent auditing agencies and evaluation agencies need to be brought in to help the project remain on track. These agencies need to follow the project from the very beginning and need to be able to report detailed information to the public in a timely manner. On the other hand, the proper use of funds does not guarantee the success of the project in accomplishing its various goals. Through both formative and summative evaluation, external evaluators will set benchmarks to help assess whether the project is meeting its goals and objectives in design, development, and implementation. The external evaluators must have strong ethics to report the true outcomes of the project, not to patronize the government for its efforts in being politically correct with its purchasing of equipment and other investment. The evaluators must be those who are willing to remind the project administrators constantly to focus on technology application but not technology acquisition. They should provide timely feedback to help improve the implementation of distance education in the rural areas.

In addition, the trustworthiness of auditing and appraisal lies in its independence in personnel, financial support, and function. For example, out-of-province auditors should be employed when the project is province-wide, the auditing and appraisal fee must not come from the project implementation organization, and there should not be any exaggerated forms of reception parties for the auditors. Also, auditing organization should take full responsibilities for their auditing and appraisal results.

Similar to people in western countries, Chinese people rely on media to keep them informed about current events. Media reports, therefore, must go beyond reporting impressive figures and unusual success. They must report the whole truth, addressing the many complex factors and developments emerging from the project implementation. The general public, who are financing the project as the tax payers, deserve to know all the details of the project’s progress, and to voice their opinions when opportunities for the exchange of views are available.

**Strengthening the cooperation among different organizations**

MDEPRS is a highly specialized and complex project that needs the close cooperation of government officials, educational experts, technology experts, rural problem experts, poverty elimination experts, and the learners. The government should not dictate the whole project implementation; instead, a variety of organizations, such as public service organizations, nonprofit public institutions, academic research organizations, various kinds of public profitable organizations, and youth volunteer organizations should all be involved. The active participation of all these organizations will help the project to be innovative and to meet the needs of its audience. It will also help the project to be more open, to arouse public concern and extensive social support, to attract more resources (especially intellectual resources) to the rural education system, to widen the interacting range and deepen the intensity between cities and rural areas, and to promote the forming of a harmonious society. On the other hand, inputs from various organizations can bring management problems. The key to tackling these problems lies in building a flexible and open planning model in place of the traditional planning model, which tends to identify a single solution for all problems.

Although the initial objective of MDEPRS is to construct large-scale communication and teaching infrastructure, including satellites, network, and computers, these efforts will bring little benefit until the infrastructure is used efficiently to support teaching and learning activities. The government should intentionally strengthen the cooperation of many public and private organizations. Through various kinds of marketing means, the government can open the infrastructure to various kinds of institutions: ‘network-based schools’, teacher-training colleges, ‘One Village One University Student’ programme of Central China Radio and TV University, agriculture and forestry universities, and the continuing educational institution of hygiene system. All institu-
tions should be encouraged to use the technologies created for distance education and to provide service to the rural population through instructional programmes and activities. The MDEPRS should provide funds to support the development of these local educational institutions.

Guaranteeing and increasing the financial support

The total funds of MDEPRS are 10 billion Yuan, which are not disbursed by the Chinese central government. Instead, local regions are mainly responsible for allocating the funds. The central government will subsidize funds for each region based on its social and economic development. Until 2004, the central government has invested 980,000,000 Yuan to provide hardware for the three aforementioned models, but only 20,000,000 Yuan in developing educational resources (MOE 2005a, b). This drastic contrast indicates that the central government is more interested in investing in hardware and equipment, and is content to leave other investment to the local governments. The local governments will need to invest in many other application systems for the equipment to be useful: software, courseware, educational resources, and training of human resources, etc. The poor areas in the western regions often have insufficient resources to maintain these technological facilities or to support their application in teaching. For example, the MDEPRS project in the HuanCui District of WeiHai city needs 750,000 Yuan, but the local government has allocated only 440,000 Yuan (The Educational Bureau of HuanCui District 2004).

MDEPRS currently faces a major challenge in ensuring that the great efforts produce worthwhile and fruitful results. In particular, this project must avoid becoming a one-time heavy investment on the infrastructure of education. Continuous funding from the central government will be a critical factor for its success especially when the rural governments’ fiscal ability is limited, and they often only have enough funds to support the operation of their offices. Many areas are still struggling to implement the Nine-Year Compulsory Education. As a result, much of the modern equipment is not well maintained and will stop functioning after a few years. Learning from lessons from the past small-scale rural distance-education initiatives, MDEPRS must secure reliable sources of funds, and it must better address the budgeting issues. First, there needs to be sufficient budget for maintaining, running, and managing the project. Second, funds of rural distance education should be included in the project budgets of government finance at all levels. As now is the case with funds for compulsory education, the funds for rural distance education should also increase annually according to economic development. Third, go light on hardware construction. Instead, funds should be allocated in appropriate proportions to resource and content building, teacher training, and rewards for teachers’ innovative application of technologies in teaching. The government should evaluate the project progress by students’ learning process and outcomes, not by the construction of basic facilities. Fourth, the project funds should flow into the rural areas by employing more rural personnel in project design, pilot testing, and implementation and provide them with competitive compensation.

Conclusions

MDEPRS is a project funded by China’s Central government. It demands the coordination of many complex factors – human resources, equipment, technology, regulation, funding, teaching practice, and optimization of management procedure. Here, we describe the three models of distance-education delivery that this project uses, and reflect on the critical issues related to project design, implementation, evaluation, and budgeting. We also suggest ways in which the project can be improved and can better serve the rural schools and people, so as to facilitate the overall educational, social, economic development of the vast underdeveloped rural areas in the western regions. In summary, the focus of MDEPRS needs to shift from the application of technology and not technology itself. To better implement MDEPRS, the government should ‘adopt the ecological and systematic view, direct the practical work with consideration of the whole system, and emphasize the relationship between technology, people, and their activities’ (Yu 2005c). Furthermore, the project teams should pay more attention to the rationality of fund distribution, software and hardware construction, resource construction, vocational development of teachers, local personnel training, institutional improvement, guidelines for technology and teaching applications, and other associated services. Their mission is to bring
continuity and harmony to the rural educational development, so that it can better accomplish its goals.

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