

CHINA

Tech takes teachers to remote classrooms

Chengdu program illustrates one way educational resources can be shared

By ZOU SHUO
zoushuo@chinadaily.com.cn

72,000 students

at 248 rural schools have benefited from livestreaming courses, which helped them pursue higher education.

Livestreaming of school classes from high-quality city schools to classrooms in remote areas is being touted as a possible long-term solution to the educational disparity between China's urban and rural areas. Students score better in their schoolwork when they receive the livestreams.

A key disparity between urban and rural schools is the quality of teachers. Rural schools struggle to attract high-quality talent. To remove this obstacle, a range of subjects taught at Chengdu No 7 High School — considered one of the best in Sichuan province — have been broadcast daily for the past 16 years via an interactive video link to hundreds of classrooms in remote, impoverished areas.

According to China Youth Daily, which cited figures provided by the school, the system has benefited about 72,000 pupils at 248 rural schools, with many choosing to pursue higher education. Eighty-eight of them were admitted to premier institutions, such as Peking University and Tsinghua University.

Promising results

The livestream sharing has sparked much discussion among industry analysts and on social media, where many have called for more public and private investment to promote similar high-tech projects.

Yan Feng, a professor of Chinese literature at Shanghai's Fudan University, said distance-learning technology has brought new hope for education equality.

Ding Lei, CEO of tech giant NetEase, has pledged 100 million yuan (\$14.5 million) to fund initiatives that improve rural education. Of the program in Chengdu, he said: "Two hundred schools are far from enough. There should be 2,000."

Luquan Yi and Miao autonomous county in a poverty-stricken area of Yunnan province intro-

duced the livestreaming program at two schools, No 1 High School and Minzu High School, in 2006. Both now have four classes using the service.

"The results have been astonishing," according to Wang Kaifu, head of the county's education bureau, who said 42 students from the classes scored at least 600 out of 750 in this year's *gaokao*, or national college entrance exam, up by a factor of seven year-on-year.

Some 152 students were admitted to top-level universities, a 55 percent increase year-on-year, while the two students who performed best in the *gaokao* were accepted at Peking and Tsinghua universities. The last time that happened was in the 1980s, Wang said.

Part of the credit can be attributed to massive investment by the local government, he said. The county spent 822 million yuan to boost education last year, more than 200 million yuan more than its annual GDP.

"We offer 12 years of free education, while most places in China offer nine," he said, adding that the county has recruited 572 college graduates as high school teachers since 2015, while each student receives an annual subsidy of 5,000 yuan.

"Education is the best and most fundamental way to get rid of poverty," Wang said. "Receiving a good education means students have the opportunity to see the outside world and realize their dreams."

Yet, some observers caution against relying on livestreaming, saying that video screens cannot make up for the shortage in quality teachers in the countryside. Chu Zhaoxun, a senior researcher at the National Institute of Education

Sciences, said the majority of rural children are not benefiting from livestream classes because the classes are open only to top-performing students.

In addition, the fact more young people from rural schools are moving on to universities can just as easily be attributed to the students' hard work and favorable admission policies for disadvantaged applicants, he said.

Other views

Xiong Bingqi, vice-president of the think tank 21st Century Education Research Institute, said, "It's inaccurate to say that online education is the reason more students from rural areas are going to top universities. Online education needs to be reinforced by local teachers. With no guidance from a teacher, there will be little effect on students, even if they take online courses."

Concerns were also raised over the price charged by the Chengdu service provider, Oriental Wendao, a private company. It costs schools 60,000 to 70,000 yuan per class per year to livestream lessons, depending on the curriculum.

In most cases, that cost is covered entirely by the local education authority.

In 2015, the State Council released the Rural Teachers' Support Plan to boost education in rural areas. The plan said the developmental imbalance — including poor transportation and low-quality equipment at rural schools — means that teaching in underdeveloped areas remains an unappealing job.

"This blueprint is aimed at attracting talented teachers to rural schools," it said.

In an attempt to narrow the gap in 2012, the central government ordered top Chinese universities to accept more students from disadvantaged areas, mainly by lowering entry test scores. This year, 37,000 students from impoverished regions were admitted by China's 140 top universities, accounting for around 10 percent of the total number of students admitted.

Yang Zekun contributed to this story.

Fit for a queen



Workers carefully examine a gold crown at the Hunan Museum in Changsha, Hunan province, on Monday. The crown, found in a tomb in Tillya Tepe, Afghanistan, dates to AD 25-50 and is a national treasure of the country. A total of 231 artifacts from Afghanistan will be on display at the museum starting on Saturday. YANG HUAFENG / CHINA NEWS SERVICE

Ultrafast anti-ship missiles offered for sale

By ZHAO LEI
zhaolei@chinadaily.com.cn

China is promoting an ultrafast anti-ship ballistic missile, said to be the first of its kind in the international market, to buyers seeking a reliable and affordable deterrence against threats from the sea.

China Aerospace Science and Industry Corp, the nation's largest maker of missiles, has brought the CM-401 supersonic anti-ship ballistic missile to market, saying it is capable of making rapid, precision strikes against medium-sized or large vessels, or against land targets.

It said the weapon uses a "near-space trajectory", which means it flies between 20 and 100 kilometers above the earth, and that it maneuvers at hypersonic speeds throughout its flight.

The missile will ascend to a certain altitude until its target is acquired. It will then enter an ultrafast terminal dive toward the target, according to CASIC.

The company said the CM-401 features strong destructive power, good penetration capability and a mix of trajectories. It added that the missile can be mounted on various

platforms, such as ships or land-based launch vehicles.

According to the CASIC, the missile flies at an average speed of 1,360 meters per second — 4,900 kilometers per hour — or four times the speed of sound, during most parts of the flight, and reaches a maximum velocity of more than 2,000 m/s, six times the speed of sound as it approaches the target. It can carry a 290-kilogram warhead and has a maximum strike range of 290 km and a hit rate of 90 percent, meaning there will be nine effective hits on target out of 10 shots.

The State-owned defense conglomerate made the missile system public at the 12th China International Aviation and Aerospace Exhibition that was held recently in Zhuhai, Guangdong province.

Meanwhile, the China Academy of Launch Vehicle Technology, the country's major rocket maker, recently offered its M20B anti-ship ballistic missile to the international market.

The road-mobile M20B also features supersonic speed and a maneuverable trajectory. Carrying a 480-kg warhead, the missile can hit a ship 120 km to 280 km away. It is

suitable for rapid, precision attacks on frigates and destroyers, the academy said.

Before the CM-401 and M20B, all anti-ship missiles available in the international market were sea-skimming models such as China's C-802 and CM-302 and the United States' Harpoon.

China is the only country that currently fields anti-ship ballistic missiles. Its DF-21D and DF-26 are called "trump cards" in naval warfare by the Chinese military, but are not allowed for export because of a strike range said to be more than 1,000 km — far exceeding the restrictions on the export of missiles set by the Chinese government.

Wu Peixin, a defense industry observer in Beijing, said that ultrafast anti-ship ballistic missiles like the CM-401 can potentially become a game changer in modern naval operations because it is very difficult for existing air-defense radars and weapons on ships to intercept such missiles due to their unique trajectories and hypersonic speeds. Therefore users will be able to effectively deter an enemy's vessels, especially aircraft carriers, from approaching their coast, Wu said.

Rural students see gap, don't like it

By ZOU SHUO

Livestream classes are a window through which rural children not only learn the subject matter of a class but also see the differences in their lifestyle compared with students in urban areas, according to teachers and students.

Lessons in various subjects at Chengdu No 7 High School in Sichuan province are broadcast daily via an interactive feed to schools across remote areas of Yunnan province.

One of those schools is located in poverty-stricken Luquan Yi and Miao autonomous county. So it was convenient for faculty members and students from the county's No 1 High School and Minzu High School to visit and observe firsthand the urban-rural gap — both in educational resources and mindset.

Wu Fei, vice-principal of Luquan No 1 High School, said that in one class students were asked to list common modes of transportation. Students from Chengdu talked about bullet trains, airplanes and cruise ships, but those in the rural school thought only of bicycles, motorbikes and buses.

Wang Yihan, a first-year student at Luquan No 1 High School, com-

plained that the livestreamed English class was taught entirely in English with no explanations in Chinese. But those in Chengdu "read English newspapers, listen to TED talks and have teachers who are native speakers".

"I couldn't understand anything that was being taught. I felt useless," she said.

Wu said many of the students are overwhelmed by a sense of inferiority while watching students thousands of miles away talk about their experiences traveling abroad. But the self-doubt subsides, and they adapt, he said.

"Usually in the second year, we see minor progress in exams. But in the final year, their academic performance is greatly improved," he said.

Zeng Kaihui, 19, one of the top scorers in the *gaokao* — the national entrance exam — in the Guangxi Zhuang autonomous region, also attended livestreamed classes at his high school in remote Baize city. In September, he was admitted to Tsinghua University, where he majors in electronic engineering.

"The livestream classes made me realize the distance between myself and the students in Chengdu. I used to be one of the best stu-

dents in my school, but compared with them I was nothing," he said.

That realization inspired him to work harder during his final three years of high school, and his grades steadily improved, even surpassing those of students in Chengdu.

Zhao Jiahua, president of Luquan Minzu High School, said the feeling of inferiority has really motivated the teachers and students in Luquan to work and study hard at every possible moment.

To make sure students keep up with their Chengdu counterparts, teachers in Luquan prepare teaching materials, give students instructions during class breaks and answer questions or even teach the classes again in the evening, Zhao said.

The workload for teachers in livestreamed classes is twice or even three times that of teachers in ordinary classes, he said, adding that students also work day and night, with some getting up at 6 am and studying until 1 am.

Wang Kaifu, head of the county's education bureau, said: "I don't think our students are less intelligent than students in Chengdu. All that separates them is the lack of good educational resources, especially good teachers."

40 YEARS ON | ZOOM-IN

Persistence pays off with thorny fruit

By YANG JUN
and ZHOU HUIYING
in Anshun, Guizhou

Walking around Daba village in Anshun city, Guizhou province, one might be amazed at the uniform villas, wide roads and parklike environment.

However, 10 years ago nobody in the village could have imagined such living conditions, nor that they could raise their average annual income to more than 12,000 yuan (\$1,740).

Villagers attributed the change to Chen Daxing, 50, who vowed to change the impoverished village when he became village Party chief in 1996.

Inspired by Chen, villagers began to plant tobacco during his first year in office, which improved their conditions. But a tobacco price slump in 1997 discouraged the whole village.

"At that time, I realized it was impossible to become wealthy through traditional cultivation," Chen said. "We needed to explore a new way."

"I took out private loans and put them into contracting farmland from a neighboring village and planted Chinese herbal medicines, pearl barley and peanuts, which resulted in a loss of 100,000 yuan due to bad weather," he said of his attempts over the next 10 years. "It didn't change a lot when we tried bamboo fungus cultivation."

The pressure turned his hair gray at age 40, but it didn't stop him.

"I still remember on the eve of the 1997 Lunar New Year, a creditor threatened to take my son away," said Chen's wife Liu Zeying. "I had to spend the Spring Festival away from home to ensure his safety."

During the 2007 Mid-Autumn Festival holiday, Chen tasted the fruit of *Rosa roxburghii Tratt*, or chestnut rose, a thorny plant rich in



Villagers sort out dried *Rosa roxburghii Tratt*, or chestnut rose, at a fruit wine factory in Daba village of Anshun city, Guizhou province. LI HANYI / FOR CHINA DAILY



Chen Daxing

vitamin C, at a friend's party.

He sensed a great market opportunity for its wonderful taste and high concentration of nutrients and began planting it on 2 hectares of contracted farmland.

In 2011, he harvested 30,000 kilograms, worth 1.8 million yuan, but he used all the fruit in a tasting festival. "It was well received among the invited guests and businessmen, and villagers saw signs of potential success," he said.

Soon afterward, *Rosa roxburghii Tratt* trees were planted widely across the village's 153 hectares of cultivated land.

A professional farming cooperative was founded, making the village the earliest and largest *Rosa roxburghii Tratt* planting base in Anshun.

In 2016, Daba village finished constructing a fruit wine factory with an annual output of 5,000 metric tons. "Further processing is an effective

way to increase the fruit's value," Chen said. "And an industry chain including planting and further processing may help develop the village faster."

In 2017, the village began to develop locust and hairy crab breeding industries, creating job opportunities for all its 1,564 residents.

"With my 2 hectares of cultivated land contracted to the cooperative, I receive a net income of 60,000 yuan per year," said villager Hu Xiaoqin. "In addition, I can earn 3,000 yuan per month growing trees."

With its good environment, the village is showing its advantages for tourism.

"After moving into the new villa in 2017, I started operating a country inn, which can bring me 20,000 yuan per year," said villager Wang Jiangping. "It feels good to earn money at home."

So far, 130 villas have been constructed with the help of bank loans.

Zhao Yandi contributed to this story.

Contact the writers at zhouhuiying@chinadaily.com.cn



Pedipower

Children propel their pedal-free bicycles with their feet during a race in Chengdu, Sichuan province, on Sunday. More than 200 children participated.

LI HUALIANG / XINHUA