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# Shanghai Schools' Approach Pushes Students to Top of Tests

By **DAVID BARBOZA**

SHANGHAI — In Li Zhen's ninth-grade mathematics class here last week, the morning drill was geometry. Students at the middle school affiliated with Jing'An Teachers' College were asked to explain the relative size of geometric shapes by using Euclid's theorem of parallelograms.

"Who in this class can tell me how to demonstrate two lines are parallel without using a proportional segment?" Ms. Li called out to about 40 students seated in a cramped classroom.

One by one, a series of students at this medium-size public school raised their hands. When Ms. Li called on them, they each stood politely by their desks and usually answered correctly. They returned to their seats only when she told them to sit down.

Educators say this disciplined approach helps explain the announcement this month that [5,100 15-year-olds in Shanghai outperformed students from about 65 countries](#) on an international standardized test that measured math, science and reading competency.

American students came in between 15th and 31st place in the three categories. France and Britain also fared poorly.

Experts said comparing scores from countries and cities of different sizes is complicated. They also said that the Shanghai scores were not representative of China, since this fast-growing city of 20 million is relatively affluent. Still, they were impressed by the high scores from students in Shanghai.

The results were seen as another sign of China's growing competitiveness. The United States rankings are a "wake-up call," said [Arne Duncan](#), the secretary of education.

Although it was the first time China had taken part in the test, which was administered by the [Organization for Economic Cooperation and Development](#), based in Paris, the results bolstered this country's reputation for producing students with strong math and science skills.

Many educators were also surprised by the city's strong reading scores, which measured students' proficiency in their native Chinese.

The Shanghai students performed well, experts say, for the same reason students from other parts of Asia — including South Korea, Singapore and Hong Kong — do: Their education systems are steeped in discipline, rote learning and obsessive test preparation.

Public school students in Shanghai often remain at school until 4 p.m., watch very little television and are restricted by Chinese law from working before the age of 16.

“Very rarely do children in other countries receive academic training as intensive as our children do,” said Sun Baohong, an authority on education at the Shanghai Academy of Social Sciences. “So if the test is on math and science, there's no doubt Chinese students will win the competition.”

But many educators say China's strength in education is also a weakness. The nation's education system is too test-oriented, schools here stifle creativity and parental pressures often deprive children of the joys of childhood, they say.

“These are two sides of the same coin: Chinese schools are very good at preparing their students for standardized tests,” Jiang Xueqin, a deputy principal at Peking University High School in Beijing, wrote in [an opinion article](#) published in The Wall Street Journal shortly after the test results were announced. “For that reason, they fail to prepare them for higher education and the knowledge economy.”

In an interview, Mr. Jiang said Chinese schools emphasized testing too much, and produced students who lacked curiosity and the ability to think critically or independently.

“It creates very narrow-minded students,” he said. “But what China needs now is entrepreneurs and innovators.”

This is a common complaint in China. Educators say an emphasis on standardized tests is partly to blame for the shortage of innovative start-ups in China. And executives at global companies operating here say they have difficulty finding middle managers who can think creatively and solve problems.

In many ways, the system is a reflection of China's Confucianist past. Children are expected to honor and respect their parents and teachers.

“Discipline is rarely a problem,” said Ding Yi, vice principal at the middle school affiliated with Jing'An Teachers' College. “The biggest challenge is a student who chronically fails to do his

homework.”

While the quality of schools varies greatly in China (rural schools often lack sufficient money, and dropout rates can be high), schools in major cities typically produce students with strong math and science skills.

Shanghai is believed to have the nation’s best school system, and many students here gain admission to America’s most selective colleges and universities.

In Shanghai, teachers are required to have a teaching certificate and to undergo a minimum of 240 hours of training; higher-level teachers can be required to have up to 540 hours of training. There is a system of incentives and merit pay, just like the systems in some parts of the United States.

“Within a teacher’s salary package, 70 percent is basic salary,” said Xiong Bingqi, a professor of education at Shanghai Jiaotong University. “The other 30 percent is called performance salary.”

Still, teacher salaries are modest, about \$750 a month before bonuses and allowances — far less than what accountants, lawyers or other professionals earn.

While Shanghai schools are renowned for their test preparation skills, administrators here are trying to broaden the curriculums and extend more freedom to local districts. The Jing’An school, one of about 150 schools in Shanghai that took part in the international test, was created 12 years ago to raise standards in an area known for failing schools.

The principal, Zhang Renli, created an experimental school that put less emphasis on math and allows children more free time to play and experiment. The school holds a weekly talent show, for example.

The five-story school building, which houses Grades eight and nine in a central district of Shanghai, is rather nondescript. Students wear rumpled school uniforms, classrooms are crowded and lunch is bused in every afternoon. But the school, which operates from 8:20 a.m. to 4 p.m. on most days, is considered one of the city’s best middle schools.

In Shanghai, most students begin studying English in first grade. Many middle school students attend extra-credit courses after school or on Saturdays. A student at Jing’An, Zhou Han, 14, said she entered writing and speech-making competitions and studied the erhu, a Chinese classical instrument. She also has a math tutor.

“I’m not really good at math,” she said. “At first, my parents wanted me to take it, but now I

want to do it.”

*Bao Beibei contributed research.*