



Science, Technology, Education and Health News from China

Number 112 – October 2013

Please note that the previous newsletters can be downloaded from the website of the Embassy of Switzerland in China: www.eda.admin.ch/beijing¹. To subscribe/unsubscribe or send us your comments, please send an email with the corresponding subject to chenchen.liu@eda.admin.ch.

Introduction

Story of the month covers Beijing’s decision to lower the weighting of English in college entrance examination. In science and technology, the recent International Astronautic Congress in Beijing triggers discussion on China as a rising space power. Chinese government commits to better finance science development and better governs science fund. Chinese authorities push for better public understanding on genetically modified food. In education, Peking University’s decision to fire an outspoken economist for poor teaching provoked controversy. In environment, Beijing announces emergency measures in heavy pollution days.

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Contact

Nektarios PALASKAS
Science and Technology Counsellor
Head of Science, Technology and Education Section
Embassy of Switzerland in the People’s Republic of China
 Tel: +86 10 8532 8849
 Email: nektarios.palaskas@eda.admin.ch
www.eda.admin.ch/beijing

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¹ Please click on the blue texts to activate the hyperlinks to either email addresses or related websites.



Story of the Month

English: Less Important in Future Chinese Education?

In response to the Chinese Ministry of Education's request to initiate concrete reform plan on college entrance examination, Beijing has announced probably one of the most critical moves by deciding to cut the weighting of English.

Starting from 2016, Beijing will reduce the weighting of English by 50 points (currently: 150 points) and lifting the importance of Chinese language by 30 points (currently: 150 points). Mathematics, the third 150 points pillar of the college entrance examination, remains the same. Students could take English exams twice a year and use their best score, which is valid for three years, for college admission.

The decision comes in a package reform plan that also affects English education in primary schools and junior high schools. According to the plan, students in Beijing will only start to take English lessons in third grade, instead of starting English on the first day of elementary school. The weighting of English will also reduce in senior high school entrance examination.

Many provinces are also working on their college entrance examination reform plans at the moments. Rumors are that Shanghai, Jiangsu Province and Shandong Province are also reconsidering how English will be tested in the future.

Amid a rising national concern on the over-emphasis of English and the dropping Chinese language skills of the young students, Beijing's decision to promote the importance of Chinese language and literature is generally supported by the public, but the reform on English test triggers heated debates across China.

Currently English courses is mandatory in all levels of studies, and English is one of the most important disciplines in all levels of exams, ranging from senior high school, college and post-graduate entrance exams to professional certification exam and civil service entrance exam. The study of Chinese language, literature and culture, however, has long been considered as second priority.

Supporters of the reform decision criticize the current way of learning and testing English "an enormous waste of effort, resources and money". Current English tests are overwhelmingly focused on grammar, vocabulary and writing, therefore do not truly reflect English proficiency. Most students, after studying English for several years, still end up not speaking the language. Supporters applauded the plan to make English exam a skill-based voluntary test as a way of lifting students from years of compulsory English learning.

There are also quite a lot of opponents on the decision to cut the weight of English, fearing that students, especially students from less developed areas of China would pay less attention on learning English which will potentially become a barrier in their long term personal and professional development, as they would not be able to compete with their English-speaking peers who communicate effectively with the outside world. They believe that students from big cities who understand the importance of English will continue to emphasize on English despite the reduced weighting, and they have access to all kinds of private courses outside of their classrooms. The real hit is on students from under-developed areas. They are already suffering from inadequate resources to master English, if the reduced weighting of English lead to a further cut in the English curriculum, their chances of learning English would be further undermined.



News

1. China in Space: How Long a Reach?

(the Economist, 28-09-2013)

The Soviet Union in 1961. The United States in 1962. China in 2003. It took a long time for a taikonaut to join the list of cosmonauts and astronauts who have gone into orbit around Earth and (in a few cases) ventured beyond that, to the Moon. But China has now arrived as a space power, and one mark of this has been the International Astronautical Federation's decision to hold its 64th congress in Beijing.

But space travel has never been just about the science. It is also an arm of diplomacy, and so the congress serves too as a place where officials can exchange gossip and announce their plans. And that was just what Ma Xingrui, the head of the China National Space Administration (CNSA) and thus, in effect, the congress's host, did. He confirmed that an unmanned lunar mission, Chang'e 3, will be launched in the first half of December. This means, if all goes well, that before the year is out a Chinese rover will roam the surface of the Moon. It will collect and analyze samples of lunar regolith (the crushed rock on the Moon's surface that passes for soil there). It will make some ultraviolet observations of stars. And it will serve to remind the world that China intends—or at least says it intends—to send people to the Moon sometime soon as well.

Mr. Ma also confirmed that China plans to build a permanent space station by 2020. Such manned stations are expensive and scientifically useless, as the example of the largely American International Space Station (ISS), currently in orbit, eloquently demonstrates. But they do have diplomatic uses, and that was why Mr. Ma reiterated in his speech that foreign guests will be welcome on board his station—in contradistinction to the ISS's rather pointed ban on taikonauts—though any visitors will first have to learn Chinese. What he did not do, though, was comment on the aspect of China's space programme that most concerns outsiders, namely exactly how militarized it is.

Most space programs are military to some extent. Both America and the Soviet Union used modified missiles to launch their satellites and spacemen in the early days. And even in the days of the Space Shuttle, NASA was employing that device to put spy satellites into orbit, and recover them. For China's space effort these still are the early days, so civilian and military applications remain intertwined.

In July, for example, the CNSA launched a trio of satellites, allegedly as part of a project to clean up space near Earth by removing orbital debris. A charitable view might be that this mission was a piece of contrition. Cynics, however, suspect that what was actually launched was another type of anti-satellite weapon—or, at most, a piece of dual-use technology which could act as a space-sweeper as well. One of the newly launched probes was indeed equipped with a robotic arm of the sort that might pick up space litter. The other two were, the story went, to stand in for bits of debris. But once initial tests were over, the satellite with the robotic arm made a number of unusual maneuvers and approached not one of the devices it was launched with, but rather an ageing satellite in a different orbit—just the sort of behavior that would be useful if you wanted to eliminate an observation or communication satellite belonging to another country.

The Chinese are not the only ones working on space weaponry, of course. America is busy in the field, too. And that accounted for a slightly more desolate atmosphere at the meeting than is normal at astronautical congresses. American law prohibits NASA from collaborating with China, or even organizing bilateral exchanges with it. That rather kiboshed the plethora of booths the agency would normally have brought to the party, particularly when it is celebrating the activities of a rover of its own—Curiosity, its fourth and largest roaming the surface of Mars.

This did not stop NASA's boss, Charles Bolden, addressing the conference, though. And more pertinently, Mr Bolden also had a note from Congress letting him off the legal leash so that, though he still could not talk with Mr Ma or his colleagues at the CNSA, he could at least meet members of the Chinese Academy of Sciences to discuss matters of mutual interest. These matters included using satellites to study Earth



itself—the most useful part of space science. But it would be surprising if the question of how to clean up space litter had not somehow come up too.

(<http://www.economist.com/>)

2. Scientific Research: Looks Good on Paper

(the Economist, 28-09-2013)

As China tries to take its seat at the top table of global academia, the criminal underworld has seized on a feature in its research system: the fact that research grants and promotions are awarded on the basis of the number of articles published, not on the quality of the original research. This has fostered an industry of plagiarism, invented research and fake journals that Wuhan University estimated in 2009 was worth \$150m, a fivefold increase on just two years earlier.

Chinese scientists are still rewarded for doing good research, and the number of high-quality researchers is increasing. Scientists all round the world also commit fraud. But the Chinese evaluation system is particularly susceptible to it.

By volume the output of Chinese science is impressive. Mainland Chinese researchers have published a steadily increasing share of scientific papers in journals included in the prestigious Science Citation Index (SCI—maintained by Thomson Reuters, a publisher). The number grew from a negligible share in 2001 to 9.5% in 2011, second in the world to America, according to a report published by the Institute of Scientific and Technical Information of China. From 2002 to 2012, more than 1m Chinese papers were published in SCI journals; they ranked sixth for the number of times cited by others. Nature, a science journal, reported that in 2012 the number of papers from China in the journal's 18 affiliated research publications rose by 35% from 2011. The journal said this “adds to the growing body of evidence that China is fast becoming a global leader in scientific publishing and scientific research”.

In 2010, however, Nature had also noted rising concerns about fraud in Chinese research, reporting that in one Chinese government survey, a third of more than 6,000 scientific researchers at six leading institutions admitted to plagiarism, falsification or fabrication. The details of the survey have not been publicly released, making it difficult to compare the results fairly with Western surveys, which have also found that one-third of scientists admit to dishonesty under the broadest definition, but that a far smaller percentage (2% on average) admit to having fabricated or falsified research results.

In 2012 Proceedings of the National Academy of Sciences, an American journal, published a study of retractions accounting for nation of origin. In it a team of authors wrote that in medical journal articles in PubMed, an American database maintained by the National Institutes of Health, there were more retractions due to plagiarism from China and India together than from America (which produced the most papers by far, and so the most cheating overall). The study also found that papers from China led the world in retractions due to duplication—the same papers being published in multiple journals. On retractions due to fraud, China ranked fourth, behind America, Germany and Japan.

Chinese scientists have urged their comrades to live up to the nation's great history. “Academic corruption is gradually eroding the marvelous and well-established culture that our ancestors left for us 5,000 years ago,” wrote Lin Songqing of the Chinese Academy of Sciences, in an article this year in Learned Publishing, a British-based journal.

In the 1980s, when China was only beginning to reinvest in science, amassing publishing credits seemed a good way to use non-political criteria for evaluating researchers. But today the statistics-driven standards for promotion (even when they are not handed out merely on the basis of personal connections) are as problematic as in the rest of the bureaucracy. Xiong Bingqi of the 21st Century Education Research Institute calls it the “GDPism of education”. Local government officials stand out with good statistics, says Mr Xiong. “It is the same with universities.”



The most valuable statistic a scientist can tally up is SCI journal credits, especially in journals with higher "impact factors"—ones that are cited more frequently in other scholars' papers. SCI credits and impact factors are used to judge candidates for doctorates, promotions, research grants and pay bonuses. Some ambitious professors amass SCI credits at an astounding pace. The quality of research is not always an issue for those evaluating promotions and grants.

The warped incentive system has created some big embarrassments. In 2009 *Acta Crystallographica Section E*, a British journal on crystallography, was forced to retract 70 papers co-authored by two researchers at Jिंगgangshan university in southern China, because they had fabricated evidence described in the papers. After the retractions the *Lancet*, a British journal, published a broadside urging China to take more action to prevent fraud. But many cases are covered up when detected to protect the institutions involved.

Some government officials want to buy their way to academic stardom as well: at his trial this month for corruption, Zhang Shuguang, a former railway-ministry official, admitted to having spent nearly half of \$7.8m in bribes that he had collected trying to get himself elected to the Chinese Academy of Sciences. Chinese reports speculated that he spent the money buying votes and hiring teams of writers to produce books. Widely considered to be a man of limited academic achievement, Mr Zhang ultimately fell just one vote short of election. Less than two years later, he was in custody.

(<http://www.economist.com/news/china/21586845-flawed-system-judging-research-leading-academic-fraud-looks-good-paper>)

3. **PKU Says Liberal Professor XIA Yeliang Fired for “Poor Teaching”**

(SCMP, Xinhua Net, 20-10-2013)

China's prestigious Peking University has defended its controversial weekend sacking of an outspoken pro-democracy professor by saying Xia Yeliang had earned poor marks for teaching.

The dismissal of Xia on October 18th generated international attention and criticism in domestic social media, and came as China's new leadership has taken measures to silence high-profile critics.

Xia, an economist, said he believed he was dismissed because of his political views, particularly his support for Charter 08, a document signed by hundreds of intellectuals, dissidents and others urging pluralist democracy in China.

But Peking University said in a statement on its microblog account on Saturday that Xia was the school's worst-ranked teacher and the source of 340 student complaints since 2006. "Xia Yeliang's teaching evaluation scores were for many years in a row the lowest of the entire university," the statement said. It added that a university committee had voted in October last year to let him go but gave him one year to improve.

In the follow-up meeting this month it said 30 people voted to end Xia's contract, three people opposed, one abstained, and three people did not attend.

Thousands of users of China's popular microblog service Sina Weibo expressed views about the motives for sacking Xia by commenting Peking University News Office's Weibo to announce the decision. One commentator using the name Leidaju claimed to have taken a course with Xia and said: "Although he sometimes held strong views, in general he was a good teacher." Another user with the name Lengyu1918 said: "Only Professor Xia Yeliang is brave enough to be a backbone for the Chinese people, whereas a lot of other people are just protecting themselves." But there were also many supporters of the university's decision, saying that Xia's lectures were not academic-driven at all.

State media Xinhua Net published an interview with Mrs. JIANG Langlang, spokesperson of Peking University on the decision of PKU to let Professor XIA Yeliang go. JIANG said since joining Peking University in 2008, Xia's teaching evaluation was the lowest in the School of Economics for three years



and the 6th lowest was his best teaching evaluation record. Next to teaching, he only published one paper on a CSSCI journal during these years.

Jiang also denied that the professor was fired for political reasons in the interview. "It would be ridiculous if a university professor with poor performance record could save his position by playing the politics card." She said.

"I learned from the School of Economics that Xia Yeliang planned to offer 3 courses to students at this academic year. 7 students registered for course 1, 8 registered for course 2 and only 3 registered for course 3 which had to be cancelled as it failed to meet the minimum registration numbers." She said.

(<http://news.sciencenet.cn/htmlnews/2013/10/284247.shtm>)

(<http://www.scmp.com/news/china/article/1335916/peking-university-says-liberal-professor-xia-yeliang-fired-poor-teaching>)

4. **Beijing Announces Emergency Measures Amid Fog of Pollution**

(CNN, 23-10-2013)

With its skies regularly shrouded by a filthy film of gray smog, bringing chaos to the transportation network and forcing millions to seek refuge behind surgical masks, Beijing has been forced to take more extreme action.

Officials in China's capital this week announced a raft of emergency measures in a bid to tackle the problem, including mandatory factory closures and bans on cars entering the city on days when pollution levels are particularly high.

While Beijing is not alone when it comes to smoke-filled skies, this city of more than 20 million people has come to symbolize the environmental cost of China's break-neck economic growth.

The city's Heavy Air Pollution Contingency Plan stipulates that when there is "serious pollution for three consecutive days," a warning system comprising of blue, yellow, orange and red -- the most serious -- alerts will be activated. Kindergartens, primary and middle schools will then have to stop classes, while 80% of government-owned cars must be taken off the roads. Private cars will only be allowed to enter the city on alternate days according to ballot system of the numbers on their registration plates.

All freight vehicles and those transporting material for construction sites will be barred from the roads when the red alert is issued, while more watering carts and sprinkler trucks will take to the roads, the state-run *China Daily* reported.

Factories in the city emitting pollutants will be required to cut their emissions or shut down completely when the orange warning signal is hoisted, while construction sites must halt excavation and demolition operations. Other measures include a ban on barbecues and fireworks on heavily polluted days.

According to the plan, these emergency measures will come into play when the air quality index for fine particulate matter, PM2.5 -- airborne particles considered most harmful to health -- exceeds 300 micrograms per cubic meter for three days running. The "safe" limit is 25 micrograms, the World Health Organization says.

While the announcement has been broadly welcomed as a step in the right direction, doubt remains about its long-term effectiveness. "The new emergency measures show the government's determination to tackle the air pollution in Beijing, especially those regulations that limit car use and close schools and kindergartens on heavily polluted days. It shows that the authority has really paid attention to those vulnerable groups," Huang Wei, a spokesman for Greenpeace East Asia, told CNN.

"But what is problematic is that those emergency measures are only targeted to those polluted days. It is rather a remedial measure than a preventative measure, and just to repair won't help the issue in the long



run. The air pollution in Beijing is mostly transmitted from other cities, and what Beijing can do is very limited. What the authority should do is to build a linkage mechanism, combining preventative measures with emergency control. For instance, factories in surrounding areas like Inner Mongolia, and Shandong Province could close their factories in advance before the potential transmission of serious pollutants. It should be collaborative work between cities, and only Beijing is not enough."

(<http://edition.cnn.com/2013/10/23/world/asia/china-beijing-smog-emergency-measures/>)

5. China Pushes Genetically Modified Food

(Wall Street Journal, 23-10-2013)

Caught between rising pressures to increase its food resources and popular skepticism over allowing more genetically modified food, China's government is stepping up a public-relations campaign that could pave the way toward full approval for commercial production of these politically sensitive crops.

In recent months, the agriculture ministry and other state agencies have rolled out a series of statements and publicity events loudly backing the safety of GMO food, ranging from research on cucumbers to taste tests for rice. GMOs is a technical term referring to genetically modified organisms that have had their genetic blueprint artificially re-engineered; for example, corn altered to become bug-resistant.

In China's central Wuhan city, capital of Hubei province, pro-GMO activists at top state school Huazhong Agriculture University held a weekend shindig offering cake and porridge made from genetically modified "golden rice" – modified to produce more beta-carotene, a form of Vitamin A – grown by the university, the official Xinhua news agency reported Monday. Similar "taste tests" have been staged in more than 20 cities since May, Xinhua said.

On October 21st, the Ministry of Agriculture published a statement lauding research by a Chinese Academy of Agricultural Sciences scientist Huang Sanwen that mapped the genetic code of the lowly cucumber. The research, it noted, was published in *Nature Genetics*, an influential global journal for high-level genetic research.

Days earlier, the ministry had put out an extensive question-and-answer essay on its website, aimed at rebutting a series of recent anti-GMO screeds published in the media. The ministry took aim – not for the first time – at an essay published in the nationalist *daily Global Times* by Peng Guangqian, a People's Liberation Army major general who warned that it would be strategic foolishness to allow the U.S. to threaten China's food security by nurturing the Middle Kingdom's dependence on American genetically modified corn exports. The ministry also identified other media articles, including in the daily *China Business News*, that it said "revived rumors claiming GMO food causes cancer and affects fertility and again raised panic among people over GMO techniques."

Fronted by appointed heavyweight academics, the ministry stated that there hasn't yet been any healthy safety issues irrefutably linked to GMO food. GMO foods "undergo rigorous pre-market safety assessment" and GMO yields were far higher than conventional crops, it said. "Using domestic and foreign resources, and coordinating between two markets, are an inevitable choice for China," the ministry said. It added that the U.S. is not only the world's largest producer of GMO corn, but also its largest consumer.

The public-relations offensive may be a signal that the government is readying itself to open the door to domestic commercial production of GMO crops, a local newspaper suggested in an article.

"The next step will be to increase scientific propaganda for our GMO biotechnology industry, to create an environment of good public opinion, and to accelerate GMO regulatory amendments," the Beijing News report said October 22nd, citing an unnamed agriculture ministry official. The ministry didn't reply to a call for comment.



China currently permits the commercial production of GMO tomatoes, cotton, papaya and bell pepper. It allows the import of GMO corn, soybean, canola and cotton for use in animal feed and other non-human consumption. In November 2009, the Ministry of Agriculture granted bio-safety certificates – which allow for domestic field trials – for two pest-resistant varieties of GMO rice and one variety of corn.

The sentiment in the media and China's Twitter-like microblogging world tend to question the safety of GMO food in a country already awash in toxic-food scandals. For now, an ocean of critical public opinion still separates commercial production of these grains from approval by the agriculture ministry.

But Beijing's publicity blitz may now no longer be just about a war of wonky words with military theorists and academics. It may be revving up to turn the tide of opinion among the masses. At the taste tests for "golden rice" at Wuhan on Saturday, according to the Xinhua report, volunteer organizers were seen sporting T-shirts with a catchy slogan that said, "Love Science, Support Genetic Modification."

[\(http://blogs.wsj.com/chinarealtime/2013/10/23/china-pushes-genetically-modified-food-draft/\)](http://blogs.wsj.com/chinarealtime/2013/10/23/china-pushes-genetically-modified-food-draft/)

6. China to Better Finance Science Development

(China Daily, 22-10-2013)

China will improve the way it provides financial support to science and technology development, Finance Minister Lou Jiwei said on October 22nd. When delivering a report to the country's top legislature, Lou said despite increasing financial support to the sector, reforms are needed to improve the system's effectiveness.

Basic research relies heavily on financial support from the central government rather than local governments or enterprises, and the proportion of research and development expenditures spent on basic research is too low, Lou said in the report to the Standing Committee of the National People's Congress. In addition, the science and technology funding system lacks coordination between departments, and relations between the government and the market have not been clearly defined, impacting the effectiveness of fiscal support.

Lou said the most fundamental way to address these problems is to further deepen reform of the science and technology system. He said the government will continue to transform its functions and build a science-technology innovation system with enterprises as major players. The government will also promote other forms of financial support, such as angel investment and government procurement of services. Lou also said the science and technology evaluation system and management of financial funds in the sector should be improved, and in the meantime, the monitoring and supervision of its use should be strengthened.

The country's fiscal expenditures in science and technology development increased from 168.9 billion yuan in 2006 to 560 billion yuan in 2012, an average annual growth rate of 22.73 percent. Expenditures in research and development in China reached 1 trillion yuan (\$164.1 billion) in 2012, about 1.98 percent of its gross domestic product, according to the report.

The report came at a time when the misuse of research funds has become a serious issue in the country.

"The more money invested, the more problems there will be, if the system stays the same," Zhang Weiying, a well-known Chinese economist at the Peking University, said at a forum on Oct 13th. Zhang said that research institutes and colleges in China are scrambling to spend more research funds, because they would be punished if they fail to spend every penny listed on the budget they submitted to authorities. "Tsinghua University was fined tens of millions yuan last year," Zhang said.

In 2012, the National Audit Office investigated more than eight major national science and technology programs, which the central government invested a combined 34.76 billion yuan on, but found that 98 percent of research tasks under these programs did not even receive an acceptance check.



Li Lianda, a member of the Chinese Academy of Engineering, criticized the ill management of research funds on his blog. "An important reason that the research tasks could not receive an acceptance check is that the money was allocated too late. When the task starts, there is not a single penny paid. A small amount is usually allocated one year later, and all the money comes together when you are about to finish," he wrote. "So when all the money is finally given out, the researchers are so busy spending the money that they have to put off the research progress and the acceptance check."

Wan Gang, minister of Science and Technology, said the administrative department should create conditions to make the use of research funds in a more open and transparent manner.

"Only through greater transparency is it possible to avoid serious misuse of the funds, and thus increase the efficiency of the use of research funds," Wan said at a press conference on Oct 11th.

The ministry is building a science and technology report system in China, which requires State-funded research projects that have passed acceptance tests to submit reports that contain the research goal, method, process, technical content and lessons learned, to provide references for peer researchers.

(http://www.chinadaily.com.cn/china/2013-10/22/content_17052067.htm?utm_source=Th...)

Events (November – December 2013)

Science, Technology and Education-related Events in China

Urban Environmental Pollution 2013 - Asian Edition

Date: November 17th to 20th
Place: Beijing
Contact: <http://www.uepconference.com/>

China Automotive Engineering and Manufacturing Expo

Date: November 26th to 28th
Place: Beijing
Contact: www.caemex.cn

International Symposium on Communication and Information Theory

Date: December 1st to 3rd
Place: Chengdu
Contact: <http://www.iscit.net/>

Marintec China 2013

Date: December 3rd to 6th
Place: Shanghai
Contact: <http://www.marintecchina.com/>

International Conference on Information Science and Cloud Computing

Date: December 7th to 8th
Place: Guangzhou
Contact: <http://paris.utdallas.edu/iscc13/>

International Conference on Future Trends in Computing and Communication Technologies

Date: December 27th to 29th
Place: Beijing
Contact: <http://ftcom.org/>

Swiss-related S&T, Education and Health Events and Announcement

Swiss Presence in Shanghai before 1949 - Lecture by Daniel Nerlich, Ms. Bao Zhong

Date: November 12th
Place: Shanghai
Contact: Swissnex China

5th St. Gallen Symposium Beijing Reception

Date: December 4th
Place: Beijing
Contact: Embassy of Switzerland in China