Science, Technology, Education and Health News from China

Number 123 – September 2014

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Introduction
This month’s newsletter starts with a brief overview of the recently announced reform plan for China’s college entrance examination, or “gaokao”. In science, the importance of incorporating 3D printing in traditional manufacturing industry is being emphasized by Chinese researchers. China will cooperate with Europe and Russia on manned space program. The institutional reform of Chinese Academy of Sciences caught the attention of Nature. In education, MBA programs in China are becoming popular worldwide. Foreign experts are facing tighter requirements. SAT reform in US stirred debate in China.

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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

Gaokao Reform

At the beginning of September 2014, the State Council announced the long-awaited guiding opinion to reform college entrance examination, or “Gaokao”, together with two pilot reform plans from the province of Zhejiang and the city of Shanghai. 1st year high school students in Zhejiang and Shanghai enrolled in this September will be the first group students sitting in the new Gaokao in 2017, before the new Gaokao system is implemented nationally in 2020.

The guideline mainly aims to address four issues: fairness of the system, transparency in admission, “a second chance” for most of the exam subjects and a separated examination / admission system for vocational track.

On fairness, the guideline plans for an “affirmative action” among universities in the more developed eastern part of China, requesting them to set aside a quota to recruit students from Western China and from poor family background. In particular, universities affiliated to the Ministries, most of which are located in the metropolitan cities of Beijing and Shanghai, are requested to open doors for more students from other provinces as well instead of admitting most of their students locally.

Following a national scandal in 2013 where the admission director of a top Chinese university was arrested for corruption in independent admission of students with “special talents”, the new gaokao plan has immediately eliminated the preferential treatment of students with special athletic and artistic gifts in admission, crashing the dreams of tens and thousands of high school pupil who spent their childhood learning music instruments or practicing sports in the hope of securing them a seat in top universities with the preferential admission policy.

Independent tests and admission of students with strong academic or innovation competences will continue, but the procedure has been moved after the gaokao takes place, due to extensive criticism that the previous independent tests, which take place 2-3 months before gaokao, require extra efforts to prepare and have created additional pressure for students.

Gaokao scores depend solely on this once-in-a-life-time 2-3 days examination. But this is about to change. Only Chinese language and mathematics remain as one-time compulsory test. English, the third compulsory subject, could be taken twice during high school years. The other subjects will be examined by separate standardized tests which students can choose to take the tests at any point in their high school career, and decide which three results are used for their university admission. The Zhejiang reform plans that each standardized tests could be taken twice whereas the Shanghai reform plans only one chance.

A separated examination and admission system for tertiary vocational education has also been planned, in the hope of making vocational education a more tempting choice for more students. Students in secondary vocational education track will go through general knowledge + skill test to enter tertiary vocational education institutes. For students in academic high schools to enter tertiary vocational education, additional professional aptitude test and scores of standardized tests could be used to apply. In both Zhejiang and Shanghai, students will be able to apply and be admitted by multiple tertiary vocational education institutes and decide to accept one in due course – a system that is eventually going to be expanded to academic university as well.
News

1. **China Attracts a Growing Slice of the Global MBA Sector**

*(Ft.com, 31-8-2014)*

In the past decade China has not only become a magnet for overseas university students, it has also seen the launch of a growing number of management and finance programs in the English language.

So much so that in 2012 China was the third most popular destination for globally mobile students at higher education level, according to the Institute of International Education, the US-based, non-profit research and information body.

"China has become a global education hub," says Peggy Blumenthal, senior counsellor to the president at IIE, adding that part of the draw has been the provision of business and management programs in English. "In the old days, first they had to learn Chinese," she adds.

Attracting 8 per cent of the 4.3m world total of globally mobile students, China is snapping on the heels of the UK, which has 11 per cent of the total. The US is the most preferred destination with 19 per cent of the pie, according to the latest Project Atlas report on student mobility from the IIE.

In 2001, when the IIE first started compiling its data, China did not figure in its top eight country list.

Certainly, provision of business education in English in China appears to be accelerating. This month the Chinese University of Hong Kong will welcome the first students on its Shenzhen campus, just across the border from Hong Kong. The undergraduate students have been able to choose from programs offered by the school of management and economics, as well as science, engineering and humanities programs. All the students will be taught in English, and the university plans to add postgraduate management and finance programs later. CUHK says the fledgling management school has attracted five international students in its first intake.

The Shenzhen initiative follows hot on the heels of London Business School’s announcement in June that it would team up with Fudan University in Shanghai to teach a double degree masters in management programme from September 2015. The high profile tie-up adds to Fudan’s other alliances with leading western business education providers, including MIT Sloan School of Management and the Olin Business School at Washington University in St Louis, both in the US, BI Norwegian Business School, The University of Hong Kong, Korea University Business School, and NUS Business School in Singapore.

Also in June came the news that Cornell University’s Johnson School and Tsinghua University in Beijing would be teaching a double degree MBA together. Tsinghua is known for its 17-year collaboration with MIT, and runs an Executive MBA programme with INSEAD, which has campuses in France, Singapore and Abu Dhabi.

Similarly, Duke University’s Fuqua School of Business has just launched its first programme from its joint venture with Wuhan University in Kunshan, a city in Jiangsu province just west of Shanghai. Duke follows early movers such as the University of Nottingham which has just celebrated the 10th anniversary of the launch of its campus in Ningbo, a city on China’s east coast. The school’s website boasts that its masters programs attract participants from more than 20 countries.

Other schools have also dipped their toes in the water without making a commitment to establishing a full-scale campus.

But with all this increase in English language business education provision, there are some concerns about the quality and content of what is being taught and questions about its long-term impact.

“Foreign schools could risk diluting their brand value,” says Michael Pettis, professor of finance at Guanghua School of Management at Peking University. He says some prestigious schools are setting up
shop in a manner not unlike how a French fashion label might open a boutique in a wealthy area of Beijing or Shanghai.

Mike Bastin, visiting professor at China’s University of International Business and Economics and senior lecturer at Southampton Solent's School of Business in the UK, also thinks some overseas schools should be adopting a more strategic, long-term view and targeting second- and third-tier cities.

Prof Bastin, who has taught in China since the 1990s, says overseas business schools have a particular advantage. “In China, there’s a high value placed on education – especially on business education – but there’s a deep distrust of Chinese provision,” he says.

CEIBS in Shanghai, which is ranked 17th in the FT Global MBA 2014 ranking, attracts large numbers of international students. Established in 1994 as a joint venture between the Chinese government and the European Commission, the autonomous school is also able to pick from among the best Chinese applicants.

“China is becoming more and more part of the world economy and the need for ambitious individuals to communicate with the outside world is increasing,” says Hellmut Schütte, dean of CEIBS. He says China needs the international business education that it is now trying to encourage and that it benefits both overseas and local Chinese students to have that education provided in English.

“Foreign participants bring the urgently needed cross-cultural dimension into the classroom,” he says, adding that Chinese is not a language students can learn in a few months.

However, the rapid opening of China’s education system to foreign influence could bring its own dynamic, Prof Pettis points out. “The question is,” he says, “can you centralize political power while decentralizing economic power?”

For Prof Bastin, the answer could be interesting. “You can't have the sort of education system we have in the west without political change,” he says.

(http://www.ft.com/cms/s/2/47c55cae-1970-11e4-9745-00144feabdc0.html#axzz3CdTzVyX0)

2. 3D Printing Urged to Integrate with Traditional Manufacturing

3D printing is inching towards large size, high precision and complicated structure, wherein the ever expanding field of application and the continuously improving printing resolution have become the main highlights. As an emerging technology coming into maturity, 3D printing should be integrated with the traditional manufacturing technology for mutual complementation so as to obtain a bright future.

At present, 3D printing technology is being widely applied in various fields, such as cultural creative industry, biomedical treatment and industrial design.

Song Yanlin, researcher of Institute of Chemistry & director of Green Printing Key Laboratory of Chinese Academy of Sciences, introduced that 3D printing technology is being developed towards large size, high precision and complicated structure, wherein the expansive use of the printing materials and the continuously improved printing precision has become the main highlights.

Yan Yongnian, chief advisor of China 3D Printing Technology Industry Alliance & professor of Tsinghua University, is the domestic expert who started to engage in 3D printing technology research at early period. He believed that once various precise metal pieces were printed by laser 3D printing technology, the "3D printing technology reform" could be really achieved.

Yan Yongnian further indicated that ‘4000W-L-SS’ platform was currently one new highlight in 3D printing industry, “the so called L-SS was the abbreviation combination of LCD, SLD and SLS, wherein
LCD refers to the laser-cladding sedimentation forming technology, SLM refers to the selective laser melting forming technology and SLS refers to the selective laser sintering forming technology. “The completion and the practical implementation of L-SS platform were significantly important, and would play an important role in aviation, aerospace, nuclear energy, mould reconditions, mining equipment recondition, etc.” Yan Yongnian said that for example, if L-SS platform was installed in the ocean vessels, it could greatly reduce the carrying quantity of the heavy spare and accessory parts, such a domestically advanced vehicle-mounted platform would constitute the "hospitals" both for the mobile military equipment reconditioning in the battlefield and the mining equipment reconditioning in the field.

Although 3D technology is still in the ascendant, several experts and principals of the enterprises interviewed by the reporter indicated that the development of 3D industry in our country had many development bottlenecks and links that need to be improved.

According to the opinions of Song Yanlin, there are still some technical limitations for the further development of 3D industry. For example, how to achieve high precision printing so as to avoid secondary operation; how to improve the printing speed so as to enhance productivity; how to improve the performance of the printing devices so as to compare favorably with the traditional manufacturing modes, etc.

Yan Yongnian suggested that the academic talents as the main force that introduced 3D printing technology into our country were from universities including Tsinghua University, Xi'an Jiaotong University, Huazhong University of Science and Technology, and were also the leaders in this industry, so these academic talents should widely cooperate with the financial experts and the marketing experts so as to overcome these limitations of the industrial development. Additionally, he further indicated that 3D printing should be integrated with the traditional manufacturing industry, which was the right direction of 3D printing development, and as the gradually matured emerging technology, 3D printing still might be integrated with the traditional manufacturing technology for mutual complementation so as to obtain a bright future.

(http://english.cas.cn/Ne/CASE/201409/t20140909_127458.shtml)

3. **China in Cooperation with Other Countries in Manned Space Program**

China cooperates with Russia and Europe in its manned space program, with future plans for possible coordinated space module dockings, the country's first astronaut said on September 10th.

Yang Liwei, deputy chief of China's Manned Space Agency, said at a press conference at the annual meeting of the Association of Space Exploration (ASE) that China has hosted many astronaut exchanges with the United States, Russia and Europe.

In the past few years, a training exchange was conducted between the China Astronaut Center and European Astronaut Center.

The country has also undergone far-reaching collaboration with other countries in space medicine, scientific experiments and astronaut selection, the astronaut said.

"I myself received micro-gravity training programs in Russia," said Yang, who added that in the Shenzhou-8 mission, China and Russia jointly conducted 17 life science experiments in space.

Yang also said China is willing to cooperate with other countries in space mission, as it has designed interfaces that would allow Chinese space modules to dock with those from other countries.

"We've reserved a platform to cooperate with other countries in missions by having designed interfaces for our space modules so that they can dock with modules of other countries," he said.
China looks forward to cooperating with other countries in space station technology, astronaut training, program design, equipment research and development, and even holding joint missions, he said.

(http://english.cas.cn/Ne/CN/201409/t20140911_127741.shtml)

4. Foreign teachers may see tighter requirements

(China.org, 16-9-2014)

Foreigners who intend to work as teachers in China may face higher thresholds as employers nationwide are expected to copy a Beijing regulation that requires teachers to have previous teaching experience.

Under the new regulation released on September 14th, all foreign teachers who begin working in the capital after October 31st must have at least five years’ teaching experience.

Language teachers are required to have teacher qualifications or other international language teaching qualification certificates, such as TEFL and TESL.

China has more than 50,000 training centers for about 300 million English learners, according to a Ministry of Education report in 2013.

Many education experts and officials have voiced concern about inadequate supervision of foreign teachers of English.

"Some foreigners teach English only because they can speak it and have no idea of teaching methods," said an anonymous Beijing Human Resources and Social Security Bureau official who are in charge of the issue. "So it's necessary to raise the threshold to improve the quality of teaching."

Stephen Farley, a recruiting manager from EF Education First, an education company, said it's essential to choose qualified foreign teachers.

Many foreigners from all kinds of professions see teaching English in China as a way to earn a living, but not all are qualified, he said.

EF Education First insists a foreign teacher must hold a bachelor's degree, TESOL certificate and have at least two years of teaching experience.

Compared with private training centers, public schools, especially universities, have kept the threshold for hiring foreign teachers higher, but they need more high-level experts in teaching.

"We need more foreign experts to meet the demand of teaching and scientific research," said Bao Huaying, who works at the international exchanges bureau at Beijing Foreign Studies University, adding that the majority of the foreign faculty members have master's and doctorate degrees from English speaking countries, especially the United States.

Wu Yaowu, director from the international exchanges bureau of Xi'an International Studies University, said the bureau wants to build a team with 100 regular foreign teachers and 20 to 30 teachers on short contracts, but "It's not easy to hire so many good teachers."

"The salary is way too low here, as Xi'an is not as attractive as Beijing or Shanghai," Wu said. The average monthly salary for a foreign teacher in Xi'an is about 5,000 yuan ($814), half of that in Beijing.

(http://www.china.org.cn/china/2014-09/16/content_33524280.htm)
5. **Chinese Science Gets Mass Transformation**

*(Nature, 23-9-2014)*

Change is coming to the institute that has been at the heart of China’s scientific development since the communist state began. The Chinese Academy of Sciences (CAS) is making unprecedented structural reforms to foster collaboration and turbocharge research. Proponents say that the initiative will make China a world leader in areas from neuroscience to particle physics; detractors question whether modern China needs such a sprawling organization at all.

The initiative — which was designed by Bai — follows an appeal by Chinese president Xi Jinping in July 2013 for the CAS to become a world leader in science. Although China’s spending on science now outpaces that of all countries except the United States, many agree that the country is not getting a good return on its investment, in terms of both basic-science breakthroughs and commercialization of those findings.

Scientists shy away from collaborations because co-authorship dilutes their achievements in the eyes of grant committees. At a conference in 2012, Bai discovered that researchers across 20 different CAS institutes were working on related projects, but often did not know each other — duplicating work and missing opportunities to share knowledge. He also notes that they had little interest in discussing applications with industry representatives.

To deal with these issues, Bai has grouped research into four categories, and promising CAS scientists are being selected to work together under them. They will see their salaries jump, relying on grants for only 30% of their income, rather than for 70%. The idea is to encourage scientists to collaborate on fewer, large problems, rather than to churn out marginal advances in disparate projects that can be used to seek multiple grants. “Teamwork is the key word,” says Mu-Ming Poo, director of the CAS Institute of Neuroscience in Shanghai.

The first category is devoted to establishing centres of excellence focused on basic science, and will target areas in which China has a chance to dominate. A second category will target areas with underdeveloped commercial potential, including microsatellites, marine information technology and drug development. A third category will establish collaborations around large-scale facilities: a synchrotron and a protein-science centre, for example, both in Shanghai, will be linked to make it easier to carry out high-precision protein studies and support academic and industry researchers, including some from abroad. The fourth category, still in its design phase, will be devoted to initiatives that assist local development and sustainability.

But not everyone agrees that the changes tackle the key problems at the CAS. Cong Cao, a science-policy specialist at the University of Nottingham, UK, says that the CAS is too big and unwieldy. “There’s no organization in the world with so many functions,” he says. He says that universities and individual research institutes, which are increasingly competing with the CAS for leading scientists, can offer a better management environment for scientists. “There probably is no reason for the CAS in China right now.”

But Bai uses the same trait to justify the academy’s existence: he argues that it allows the CAS to make wide contributions to China’s development. “You have to understand the history,” he says

*(http://www.nature.com/news/chinese-science-gets-mass-transformation-1.15984)*

6. **China Focus: SAT Reform Causes Worry or Ideology Intrusion**

*(Xinhua, 27-8-2014)*

Including content from America’s founding documents in a revised US college entry exam has drawn attention in China, with worries the materials may impose the American values system on students.
Earlier in 2014, the US College Board announced a set of changes to the SATs, including passages selected from the Declaration of Independence and the Bill of Rights in the reading section. The move stirred heated debates in China as to whether it will turn out to be a new form of imperialism, following the exporting of American culture and ideology through Hollywood and fast food.

The debate started with an article published in the South China Morning Post on August 21st, in which author Kelly Yang argued the new focus on American civil liberties may “change the mindset and world view of an entire generation of Chinese youth.” “If the new SAT succeeds, it will be the first time America is able to systematically shape the views, beliefs and ideologies of hundreds of thousands of Chinese students every year, not through a popular television show or a politician's speaking tour, but through what the Chinese care about most - exams.”

Yang Rui, an English anchor from CCTV (China Central Television) wrote on Weibo it could be a continuation of the “peaceful evolution” policy that started in the 1950s.

Wang Enming, professor with Shanghai International Studies University, agreed the change of the exam could be seen as an attempt to spread American culture. “But we should be aware that it is not tailor-made for Chinese students,” Wang said. “Because [those who take the exam] are from all around the world.” America is a country of immigrants and its growing cultural pluralism has been fragmenting their culture and values. Thus the American people themselves, especially immigrants, are also in need of a strengthened education of American values. A deepened understanding of the country's founding documents can help them form a better cultural identity,” he said.

There are around 50,000 registrations for the exam in the Chinese mainland every year. Total registrants surpass 1.6 million annually, according to Li Nannan, senior manager in Overseas Testing Management Center of New Oriental Group, a well-known English training agency in China.

Many believe the SAT reform should not be interpreted from a political point of view.

Zhang Jian, professor with Beijing Foreign Studies University, said, the reform is aimed at better evaluating a student's ability for analysis, critical thinking and problem solving. The changes will not alter world views of Chinese students because they also study the founding documents when learning American history, he said.

Deng Hongfeng, retired Dean of the Confucius Institute at Texas A&M University, pointed out American values are not contradictory to Chinese values. “What the Americans uphold, such as the notion of freedom and democracy, are also shared by Chinese,” he said.

Learning about the founding documents of America can help the Chinese students foster a more profound understanding of the culture, which will be helpful for their life and study after entering American universities, Li of New Oriental English says.

Learning of the changes, Tang Anran, a 20-year-old Beijing woman studying at Ohio State University, says she feels lucky to have taken the SAT two years ago.

"The new SAT will add knowledge of American history and put emphasis on critical thinking and analyzing skills, which hits the weakness of Chinese students like me," she explained.

In Tang's eyes, people should never worry about whether it will change Chinese students' values.

"We have been studying in China for 12 years. Several months of test preparation will change nothing. We learn the knowledge just for the exam, and after that, we forget it," she said.

(Collaborating Opportunities)

Call for application: Swiss Government Excellence Scholarship for Foreign Scholars
Deadline: October 30th 2014
Place: Beijing
Contact: China Scholarship Council

China Education Expo
Date: October 24th-November 1st
Place: Beijing, Shanghai, Guangzhou, Chengdu
Contact: http://www.chinaeducationexpo.com/

WFCP World Congress 2014
Date: October 24th-26th

Call for demonstrations and projects: Swiss Week 2015
Deadline: March 1st 2015
Place: Shanghai
Contact: info@swissnexchina.org

Call for participants: APAIE 2015
Date: March 23rd - 26th 2015
Place: Beijing
Contact: fabio.molo@eda.admin.ch