Education: A Bridge Connecting People

Dialogue

By BI Weizi & LONG Yun

"Education plays a pivotal role in bridging the two countries (U.S. and China) because scholarship and knowledge are borderless," said John Quelch, executive vice chancellor and distinguished professor of social science at China's Duke Kunshan University (DKU).

As a veteran academic administrator, Quelch has served as dean of three leading business schools: London Business School, the China Europe International Business School (CEIBS), and most recently, the University of Miami Herbert Business School.

Promoting education's bridging role

"Education plays a very important role in providing continuity of dialogue," said Quelch. DKU is one of a few Sino-U.S. joint venture universities, providing an important bridge between the two countries.

DKU was established in September 2013 as a U.S.-China partnership between Duke University and Wuhan University. Both are world-class universities that offer a range of high-quality and innovative academic programs for students.

Quelch said that DKU strives to fulfill its promises to enable students from around the world to lead purposeful and productive lives and promote mutual understanding.

In November 2023, China evinced its willingness to invite 50,000 U.S. teenagers to pursue their studies in China over the ensuing five years. Quelch perceives this as a pivotal initiative. DKU is helping with this plan to bring more American students to China.

John Quelch. (PHOTO: Science and Technology Daily)

As a highly diverse university with students coming from 70 countries and a hub for convening English language sharing sessions among the communities of international academics, DKU has always committed itself to promoting mutual understanding and mutual trust among people. According to Quelch, there's an annual DKU international forum, where top academics from Duke University, Wuhan University and others are brought together to talk about issues like green finance and sustainable development. "These interactions lead to new collaborations," said Quelch.

Putting people first

DKU is highly selective with regard to its student body, as the institution's primary objective is to recruit individuals who will contribute to its reputation as a leading global university.

Quelch emphasized the importance of human capital, stating that the university's top three priorities are "people, people and people." He further elaborated that the individuals chosen to join the DKU community are of paramount importance, as they will become the institution's future alumni and leaders, and will shape its long-term reputation.

Quelch highlighted that the applicant-to-admitted student ratio for this year's intake was approximately twenty to one, a figure comparable to the admission ratios observed at some Ivy League universities. "It's really a big commitment, and it reflects how much value we place on people," Quelch said.

Chinese brands are powerful ambassadors

As a professor at Harvard Business School for over 30 years and the first person to hold joint professorial appointments at both Harvard Business School and the Harvard T.H. Chan School of Public Health, Quelch also shared his insightful perspective on how China can promote its global image.

It was in 1981 when Quelch visited China for the first time. He is very impressed by the remarkable achievements made by China with such a large population in the past few decades.

"If you have the advantage of visiting China in 1981, you can see 43 years of history and evolution. It's the greatest economic transformation with more people lifted out of poverty than in any other fifty-year period in human history," Quelch said, adding that China has been particularly active in the development of solar panels, lithium batteries and new energy vehicles, making significant contributions to promoting global prosperity.

According to Quelch, China has the technology to bring high-quality products, at a reasonable price, to worldwide consumers. "These brands are very strong advertisements for the country," Quelch observed, citing his admiration for several Chinese appliance companies that have made significant investments in smart home technology, including robotic vacuum cleaners capable of navigating apartments and performing comprehensive cleaning tasks.

"If a Chinese brand can provide a low-cost, high-quality solution to a pain point, there is an opportunity for that company not only to succeed financially but also to promote the good image of China."

China is currently investing a significant amount of resources into research and development, with the next stage of its development heavily reliant on scientific and technological innovation. "If you look at the history of China over five thousand years, an amazing number of inventions have come from China," Quelch said, hoping China would once again provide more innovation on a global scale.

JIN Li and CHEN Chen from DKU also contributed to this story.

Traditional Eastern Wisdom

Su Song: Awe-inspiring Scientist in Ancient China

By FU Xiaobo, LONG Yun & LI Linxu

About 1,000 years ago, a hydro-mechanical astronomical clock tower was built in central China during the Northern Song Dynasty (960-1127), creating a number of world-firsts. The biggest contributor to the nearly 12-meter high tower was Su Song, polymathic scientist and statesman.

Known as China's Leonardo da Vinci, Su Song left a lasting legacy for future generations in domains such as astronomy, mathematics, pharmacology, engineering, art, poetry and statesmanship.

A mechanical marvel

The giant clock tower used water power to drive its complex gears, precisely tracking not only the time but also the phases of the moon, star positions, and other celestial movements. It was not only an impressive timepiece, but also an astronomical observatory unprecedented in its era.

At the core of Su's design was an innovative escapement mechanism, which regulated the release of energy for precise and consistent operation. This mechanism was a precursor to the anchor escapement found in European clocks six centuries later.

A bust of Su Song. (COURTESY PHOTO)

Although the original clock was lost, Su's detailed documentation enabled modern scholars and engineers to recreate it. Today, replicas can be found in museums worldwide, with one of the most impressive full-scale reproductions located in Xiamen's Su Song Park.

Here, visitors can explore replicas of Su's inventions, including his Armillary Sphere, a celestial globe mapping over 1,400 stars, which surpassed the European star maps produced three centuries later.

Su's achievements gained recognition around the world. Joseph Needham, British historian of Chinese science, conducted extensive research and analysis of his texts and feats, and called him one of the greatest scientists in ancient China as well as the Middle Ages.

Promoting Su Song culture

Coastal city Xiamen, celebrated for its scenic beauty, has embraced Su Song's legacy, turning it into a cultural treasure. His achievements are preserved and celebrated at venues like the Su Song Park and the Su Song Memorial Hall in Tong'an district, which have become vital educational resources to learn about Su's life and contributions.

To promote Su Song's achievements and spirit, the 13th Xiamen Su Song Cultural Festival kicked off in Tong'an on December 10, attracting participants from around the world.

Su's influence is deeply integrated into the fabric of modern Xiamen, with local landmarks bearing his name, daily reminders of his work. Tong'an has leveraged his legacy to promote high-quality development, with the Xiamen Science City Core Area becoming a hub of technological innovation.

Linking ancient achievements with modern aspirations fosters a culture of creativity and scientific inquiry. By doing so, the district has cultivated a thriving ecosystem for innovation, ensuring that Su Song's spirit continues to inspire new generations of scientists and innovators.

Science Literacy Needs Global Effort

Service Info

By LONG Yun & DAI Xiaopei

The 2024 World Conference on Promoting Public Science Literacy was recently held in Beijing, under the theme of "Enhance Science Literacy, Empower Joint Development." The event, hosted by the China Association for Science and Technology (CAST), saw over 400 participants, including policymakers, scientists and scholars gather for dialogues.

Ezra Clark, special representative and assistant director-general for Natural Sciences of UNESCO, emphasized the importance of enhancing public science literacy to address unprecedented global challenges, such as climate change and public health. "Improving science literacy is crucial for tackling these global challenges," he said.

Clark highlighted UNESCO's initiatives, such as the UNESCO — Kalinga Prize for Science Popularization, which aims to elevate public science literacy worldwide. In addition, the recently adopted resolution of the International Decade of Sciences for Sustainable Development 2024-2033 places improving public science literacy as a priority.

China has made significant strides in this field. According to the 13th National Survey on Scientific Literacy, the proportion of science literate citizens in China rose from 1.44 percent in 2001 to 14.14 percent in 2023.

Ni Zhiyu, director of CAST's department of science popularization, emphasized that advancing science literacy is a key goal in the new era, achieved through extensive efforts in science education, infrastructure, and international collaboration. One example is China's network of science museums, mobile science facilities, and outreach vehicles, which served approximately 140 million people in 2023.

"Science literacy is essential for humanity to overcome existential threats," said Rosália Vargas, president of Portugal's Organization for Science, Technology and Culture. She highlighted Portugal's initiatives, including networks of science clubs, schools and centers aimed at improving public science literacy.

Ana Cristina Amoroso des Neves, vice chair of the UN Commission on Science and Technology for Development, stressed the importance of international collaboration in fostering public science literacy. "It facilitates the gathering of top scientists, policy makers and scholars to share experiences and build consensus on promoting public science literacy," she said.

In terms of emerging ways to promote science literacy, Gong Ke, former president of the World Federation of Engineering Organizations, highlighted the transformative role of artificial intelligence (AI) in science education and outreach. "We must educate the public about AI's potential and risks while leveraging AI to enhance science communication," he said.

AI-powered tools, such as the StarWhisper model developed by the National Astronomical Observatories of the Chinese Academy of Sciences, exemplify how AI can support science education. "In the new era, we need AI to empower science education," said Liu Jifeng, director of the National Astronomical Observatories.

Gong also underscored the need for critical AI literacy, including technological understanding, critical thinking, and data literacy. He proposed innovative approaches to AI science outreach, tailored to diverse audiences.

The conference concluded with a call to inspire younger generations through science education. Liu said the hallmark of success in the fourth industrial revolution lies in the comprehensive enhancement of human capability.

Land-ocean Integrated ONCE Approach

Science Outreach

By Staff Reporters

Land-ocean integration is one of China's proposed approaches for Ocean Negative Carbon Emissions (ONCE).

It refers to achieving a beneficial ecological cycle between east and west China by reducing land fertilization and enhancing carbon sequestration in oceans.

Massive inputs of terrestrial nutrients into the sea not only lead to eutrophication of coastal environments and trigger ecological disasters such as red tides but also make it difficult to preserve organic carbon in seawater.

In particular, the massive amount of terrestrial organic carbon input into the ocean, approximately 500 million tons of carbon per year, accounting for about 25 percent of the net terrestrial carbon sequestration, is converted into CO_2 in estuarine and near-shore areas before being released into the atmosphere. This turns these high-productivity ocean areas into sources of CO_2 emissions rather than sinks.

Based on the concept of land-ocean integration, Chinese scientists propose reducing the use of inorganic fertilizers such as nitrogen and phosphorus in fields through scientific fertilization. This will decrease the input of river nutrients into the ocean and mitigate coastal eutrophication.

In addition, macroalgae cultivation is an effective way to mitigate offshore eutrophication and enhance ocean carbon sinks. Macroalgae convert CO_2 into organic carbon through photosynthesis. The carbon sequestration rate of this blue carbon ecosystem is ten times that of terrestrial plants. Moreover, recent research has found that feeding ruminants with algae can reduce methane emissions.

As a major livestock farming country, China can combine its western animal husbandry with eastern macroalgae cultivation. By implementing a synergistic industrial chain strategy of cultivating algae in the east and feeding cattle in the west, China contributes to the implementation of the Global Methane Pledge.

Documentaries Highlight Sino-French Cultural Communication

Expats Activity

By YANG Xue & CEN Yingjie

This year marks the 60th anniversary of China-France diplomatic relations, and is also the China-France Year of Culture and Tourism.

To mark the occasions, *Une Chine merveilleuse*, a documentary co-produced by the China Media Group and French company The Explorers, was broadcast in China in October and is scheduled to air in France.

It documents a journey along the corridor of Chinese history spanning more than 5,000 years, a wonderful encounter with ancient cultural relics and splendid civilization, and a trip to taste the colorful Chinese culture.

The documentary features the Terracotta Warriors and Horses in the Qin Shi Huang Mausoleum in northwest China, the restoration of invaluable cultural relics at the Forbidden City, the former imperial palace in Beijing and now the Palace Museum, and interaction with China's iconic giant pandas, etc.

It uses 8K Chinese high dynamic range (HDR) standards developed by the UHD World Association (UWA).

Olivier Chiabodo, CEO of The Explorers, said the HDR Vivid and Audio Vivid standards developed by the UWA are of exceptional quality. They are shared free with all industry members.

His another 8K documentary, *Pékin-Paris, un dialogue sur l'axe central*, uses cutting-edge technologies such as XR and AI. The application of these advanced technologies may resonate more deeply with young audiences in both China and France, increasing their interest in our documentaries and cultural heritage, Chiabodo said.

Sci-tech is a vital medium and driving force for cultural exchange. Through modern technologies and electronic equipment such as smartphones, tablets and digital TVs, the documentaries can reach a wider audience.

Chiabodo said he will continue to collaborate with Chinese production teams, strengthening Sino-French cultural exchange. Technological innovation, he said, will help people preserve and carry forward cultural traditions, making the world a better place.