

Scaling the wall

China's scientific surge is driving greater international collaboration, but political differences demand a realistic approach, reports **Ben Upton**.

In September 2017, the presidents of the Austrian and Chinese academies of sciences made the first ever satellite video call encrypted using quantum technology. It was another example of the west engaging with China's rising economic and scientific power, despite broader concerns about its authoritarian political regime.

"Research is one of the bridges between countries, which I think should be open as much as possible," Anton Zeilinger, president of the Austrian Academy of Sciences and the man on one end of the call, told Research Europe. "It still works between countries with different political systems."

But not everyone agrees. In recent months, western politicians have expressed concern about China stealing intellectual property or presenting other security risks. The legal woes of telecommunications firm Huawei are the most high-profile example. In the US, suspicion is also directed at colleagues. In 2018, the then chairman of the House science committee Lamar Smith said China was "putting sleeper agents" in universities to "steal our scientific breakthroughs".

Not surprisingly, Chinese academics and students seem to be becoming less keen on going to the US. "We see, especially in the US, the applications going down," says Marijk van der Wende, a researcher at Utrecht University in the Netherlands who is studying higher education cooperation between the EU and China. Conversely, the number of Chinese students going to Europe continues to rise, she says, with coauthorship data also showing deepening Sino-European research links.

"Collaboration with mainland China is really booming," agrees Bart Dessein, president of the European Association for Chinese Studies. He says European researchers seeking Chinese collaborators should build trust with individuals. Chinese institutions are encouraged to strengthen global ties, but contrived top-down collaborations rarely nurture great work, he warns. "Everything in China works bottom-up, not top-down," he says. Personal connections, known as *guanxi*, are critical.

Europe and China are similar in other respects, says van der Wende. "In terms of our budget and numbers of researchers, we're not so far apart."

Simon Marginson, who researches the Chinese higher education system at the University of Oxford, also sees similarities. The west's "corporate-driven, frenetic, performance culture" puts western and Chinese researchers "in the same place in a lot of ways", he says.

But there remain political differences that researchers would be naïve to ignore. Re-education camps for minorities such as the Uyghur and mass collection of biometric data have allowed the construction of a surveillance state, according to the charity Human Rights Watch.

Research is also not immune to these pressures. Journals in the west have become embroiled in censorship controversies over the removal of papers on subjects such as the 1989 Tiananmen Square protests from Chinese versions of their websites.

Some researchers working in China have brushed up against the authorities in discomfiting ways. "I know that I was watched closely on my trip last summer," says Elise Anderson, a PhD student at Indiana University in the US, who thinks that her research on the music of the Uyghur people from Xinjiang province made her a target.

Anderson eventually abandoned her field work after collaborators and interviewees began ignoring her approaches and she "couldn't do the work without endangering people". Her visa has not been revoked, but she says she would have concerns for her safety were she to return to China. Instead, she hopes other researchers will "bear witness".

Natural scientists can expect less scrutiny than social scientists. But Anderson warns that the former should still be careful to avoid accidentally doing damage. "Before leaving, consult other people, find the specialist, talk to people about what's OK to do," she advises.

Outsiders raising ethical concerns about China will not necessarily lead to changes in the system. Even if it does, those changes might not aid collaboration.

The condemnation of Chinese researcher He Jiankui, who became infamous after claiming to have genetically modified twins, may yet provoke a panicked clamp-down by the Chinese government, says van der Wende. "If the domestic control is going to be enhanced without an international understanding, I think it may actually complicate collaboration." But despite these hurdles, western researchers should not disengage, she says. "We have to be open in discussing where our concerns are."

China's Ministry of Science and Innovation and the National Security Bureau did not respond to interview requests.

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