**JOURNAL OF LATIN AMERICAN SCIENCES AND CULTURE**
Vol. 4 – SPECIAL ISSUE - 2022
Universidad Privada del Valle - Bolivia
https://doi.org/10.52428/27888991.v4iSpecial-Issue.206

# China's Experience in Building up Science literacy: Implications for Poverty reduction and fighting against pandemic

*Chuanhong ZHANG,*
*College of International Development and Global Agriculture,*
*China Agriculture University*
dianazhang@cau.edu.cn

China was a world leader in science and technology before the 14th century. The Four great inventions such as papermaking, printing, the compass, and gunpowder were all firstly invented by the Chinese. However, Chinese society didn't view science and technology as important as arts, literature, and public administration. While the western countries used gunpowder to make weapons and compasses for navigation, the Chinese used them for fun. Gunpowder for fireworks. China was a very superstitious society until 100 years ago when the words of science and democracy were first introduced to China.

Nowadays, China has made rapid advances in areas such as education, infrastructure, high-tech manufacturing, academic publishing, patents, and commercial applications, etc. China is now a world leader in science and innovation in some areas. China is fundamentally a science-based society and Chinese people believe in science and support all actions based on science.

How did China transform from a very superstitious society into a science-based society? I think 5 points should be highlighted here:

1. It is part of the globalization process. China started to learn from the west in the late 19th century and when the English word "Science" was introduced to the Chinese public, it was translated into "Mr. Competition", which suddenly became a popular word in the early 1900s with the May 4th Movement. Many people started to believe that if China wanted to develop itself and became competitive in the world, China had to rely on science. And of course, atheism conveyed with Marxism also influenced heavily on Chinese society. It is now the mainstream worldview of most Chinese people.
2. The national strategy since the late 1970s greatly contributes to the development of science and technology in China. In the late 1970s, Mr. Deng Xiaoping stressed that progress in science, technology, and education is essential to economic development and modernization. His famous quote "Science and Technology is the first and utmost force of production" greatly enhanced people's attitude toward science. In 1992, at the 14th People Congress, Jiang Zemin, then president, pointed out that progress in science and technology was the primary engine for improving the productive force. He said the country should work to boost education and enhance its ability to commercialize the fruits of scientific and technological research. In 1995, "Invigorating China Through Science and Education" became the national strategy. Chinese State has earmarked funding for this strategy ever since it was included in the five-year plan for 1996-2000.
3. Making strategies is just one thing, how to implement them is another. Concrete measures were put in place to provide institutional, material, organizational and

human resource guarantees for science and technology progress in China. These include a) prioritizing the position of the progress of science and technology innovation for economic and social development. That means the leading Party, the whole society needs to attach importance to and support technology innovation and remove the obstacles to science and technology development. Respecting knowledge and believing in science has become the mainstream value system of the whole society.

4. Creating a conducive cultural and social atmosphere for science and technology innovation. Constructing a national innovation system, putting enterprises at the core of innovation through providing the incubation funds, etc. Construct national science and research systems encompassing the experts who can support the whole value chain production system. Take the sweet potato crop as an example. I like to use this example because my husband is a sweet potato geneticist. To promote the sweet potato industry, a national sweet potato value chain system encompassing the scientist and breeders from national, provincial, city-level research institutes has been established, to ensure horizontal and vertical exchange between the scientist and breeders and ensure that the research achievements from the lab can be transferred to the field and fork at the fastest speed.
5. Finally, the Chinese educational system certainly plays a fundamental role in forming the people's consensus attitude toward science. Different from many countries, China's public education system provides the best quality and consistent education from primary school to middle school. All the schools use similar textbooks, and the students were evaluated with similar criteria. This is very important I think for people to form values and to build national solidarity.

**The role of science and technology in China's poverty reduction**

Science and technology play an important role in China's poverty alleviation: With the support of science and technology, many impoverished villages have customized the agricultural industries suitable to their local conditions. The contribution of science and technology to agricultural development is more than 58%. As you know, agricultural development is the major driver of China's poverty reduction in the last 4 decades. The impact of science and technology on poverty reduction is not limited to agricultural areas, like high-standard agricultural field construction and crop variety development, but also to emerging high-tech industries. Just let me provide two examples here.

In North-west China, Photovoltaic Poverty Alleviation projects have become an important source of income for many rural villages. The government provided subsidies for the establishment of the solar panel stations, and all the income generated from the PV power goes to the poor households and villages. By the end of 2020, more than 100,000 villages have their own Photovoltaic power generation station, which benefits more than two million poor households in total. It is quite a phenomenon if you travel in North-west China. You will see so many solar panels and wind turbines from place to place.

Another example is the contribution of e-commerce to poverty reduction. To promote e-commerce in poverty-stricken villages, the Chinese government has invested more than 24 billion Yuan to spread the coverage of e-commerce to 832 impoverished counties. The

number of online shops has increased from 1.3 million in 2016 to 3.1 million in 2020. Now, internet coverage has reached more than 99% in China. You won't be surprised to see an old rural lady selling her fresh eggs or a young shepherd become idle just by showing his time spent with his sheep on a beautiful mountain in TikTok or some other online platform. Due to the convenience of market access to e-commerce, many young people are attracted to rural areas to establish their careers.

**In the area of fighting against pandemics**

The Chinese people's attitude toward a vaccine and the fast vaccination rate can also be proof that scientific literacy played a very important role in fighting against the pandemic. The latest data showed that more than 1,2 billion people in China have been vaccinated with more than 2,4 billion doses. More importantly, it is voluntary, no one was forced to do it. Three factors play very important roles in containing the pandemic in China.

First, opinion leaders/scientific authority in public health played an extremely important role in persuading both government and the populace to follow the rules. In China, Prof. Zhong Nanshan, Zhang Wenhong became the heroes during the pandemic. Prof. Zhang Nanshan and the other three doctors won the highest medal of honour due to their contribution to the effective control of the pandemic. Second, the multiple communication channels between science and policymakers were open. Besides publishing opinion papers on different media, informal channels were also open. The universities were requested to submit their policy briefs to different levels of government. People also use modern media platforms like TikTok and Wechat to post their opinions. Of course, some degree of censorship is necessary to ensure the correct information were conveyed.

However, as a developing country, there is still a long way to go to become a modern society. China will become a country with socialist modernization by 2050. Looking ahead, China needs to consolidate its achievements and promote innovation-driven development: China needs to further speed up the transformation process of science and technology achievements. Compared with some developed countries, China's transfer rate of science and technology output is still very low. Just about 30% compared to 60-70% of developed countries. To achieve this goal, I think two things are very important.

First is the reform of the evaluation system for scientists. For a long time, scientists are evaluated based on the number of papers they published, not the real contribution to society. The people who work in the practical field are usually not recognized. This situation must change. The second is to overcome the "last-mile" obstacle to increase the transfer rate of science and technology outputs including providing more training opportunities for people working at the grassroots level or small enterprises.

**Funding sources:** This research was funded with funding from the author.

**Statement of conflict of interest:** The author declares that she has no conflict of interest.