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TAIWAN

From nationalising science to democratising science

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1. Background

Taiwan, officially the Republic of China (ROC), is a country located in East Asia, with neighbours that include China to the west, Japan to the northeast and the Philippines to the south. With one main island and smaller ones around its periphery, Taiwan has a population of about 23.6 million people in an area of about 36,000 km^2, which is close to the size of the Netherlands.

Previously known as Illa Formosa ('Beautiful Island' in Portuguese), the island was mostly inhabited by aborigines before the 17th century, when the Netherlands and Spain set up colonies, paving the way for mass immigration later by the Han people of China. The island was initially annexed in 1683 by the Qing Dynasty, the last imperial house of China, and was ceded to Japan in 1895 after the Qing Dynasty lost the Sino-Japanese War. While Taiwan was under Japanese rule, the Republic of China (ROC) was established on the mainland of China in 1912 after the fall of the Qing Dynasty. World War II ended in 1945 and, following Japan's surrender to the Allies, the ROC regime took control of Taiwan. However, the resumption of the Chinese Civil War led to the ROC's loss of the mainland to the Chinese Communists, with the ROC government and its remnant army fleeing to Taiwan in 1949. Such a complicated colonial history has nurtured Taiwan's characteristics as a small but tough country that has sought constant survival under various challenging international circumstances and balances of power among global leaders.

After the new regime from mainland China forcefully put down various protests in Taiwan, the domestic construction sector was let loose. In the early 1960s, Taiwan began a prolonged period of rapid economic growth and industrialisation. The tag 'Made in Taiwan' has been successfully applied to products such as textiles, plastic toys and bikes in the 1980s, and personal computers and computer chips in the 1990s. At one time, four out of every five notebook computers produced globally were designed in Taiwan. Since the 2000s, value-added innovation has been a highlight of its economic progress. Taiwan is now the 23rd largest economy in the world, and its high-tech industry plays a key role in the global economic supply chain. It also ranks quite high in terms of freedom of the press, health care, public education, economic freedom and human development. With education as one example, Taiwan was 4th in 2006, 12th in 2009, 13th in 2012 and 4th in 2015 in the PISA science assessment. The country benefits immensely from a highly skilled workforce, is among the most educated countries in the world, and has one of the greatest percentages of citizens holding an undergraduate education degree or higher.

Taiwan has worked hard to develop high-quality technology and education, striving to maintain its position amidst global competition. This chapter offers a brief overview of science communication in Taiwan through three different periods of evolution: 1945–80, 1981–2000 and 2001 to the present. The first period 1945–80 concentrated on 'useful science'. The second period highlighted the importance of science education, science popularisation and the emergence of civil awareness of one's environment, and sheds light on the emergence of science communication. Taiwan (under the Kuomintang 'KMT' ruling party, which led the occupation of Taiwan in 1949) formally ended almost 40 years of martial law in 1987, opening the way for its citizens to participate in free public debates, engagement and discussions about civil society. This newfound freedom spurred public debates on science and technology. The last period deals with developments from 2001, including systematic efforts to improve science communication. This outline gives us a chance to look both backward and forward and offers an example for other countries.

2. Period of national reconstruction (1945–80): Import of Western sciences

2.1. Science as a means of modernisation

The introduction of modern science in Taiwan can be attributed to Japan's colonisation until 1945 along with the government of the KMT that followed. Modern science served as the key to industrialisation and modernisation.

Under the nearly 60 years of colonisation, the Japanese government launched many infrastructure projects for education and research, such as the first university in Taiwan. The colonial government introduced modern agricultural science, medicine and engineering science into higher-level education. During this period, Japan was the first choice when Taiwanese sought higher education opportunities overseas. Western modern science was thus transferred into Taiwanese elites via Japan. The Japanese provided the first contact with modern science and, despite 'useful science' being at the forefront, a strong cornerstone for the development of scientific research was laid down. Japan was an important agent of knowledge transfer for Taiwan, and it was not until the 1960s that the number of students studying overseas began to focus on other countries such as the United States and those in Europe.

The call for modern science in mainland China emerged after the rejection of traditional values during the May Fourth Movement in 1919, or seven years after the Republic of China was founded. During the Movement, participants wanted to adopt the Western ideals of 'Mr Science' and 'Mr Democrat' to construct a modern nation (Jiang, 2016, pp. 68–70). However, after the KMT fled from the civil war in mainland China to Taiwan in 1949, its ruling government set up the island as a military base. 'Mr Science' served to form this new country through scientific endeavours such as geographical surveys, infection control, reducing infant mortality and improving agriculture productivity; while the ideals of 'Mr Democrat' were suppressed in Taiwan, with no public debates allowed until 1987 when martial law was lifted.

To demonstrate the government's commitment to science, the National Taiwan Science Education Center was established in 1956 with the target of complementing school education. The target groups were pupils below ninth grade. It provided equipment for scientific experiments at schools and, from 1960, organised yearly national science and technology exhibitions for schools. These exhibitions cultivated many science talents.

Under the conflicting relationship across the Taiwan Strait and the international context of the Cold War, the United States provided a broad array of resources to equip Taiwan as fortification against the Soviet Union. With billions of US dollars in financial aid and soft credit provided by the US over 20 years, Taiwan had the capital for reconstruction. The focus of early scientific research was on military technology, and any discoveries of this research were kept highly secret (Lu, 2018, p. 15). As the KMT government's hopes of returning to the mainland faded, attention turned to the domestic

side. The Ten Major Construction Projects[1] (1974–79) provided Taiwan with the transportation facilities and factories for the build-up of its heavy industry.

With the US National Science Foundation as a reference, the Taiwanese National Science Council (NSC)—the first governmental organisation for the promotion and funding of science and technology research—was established in 1959, eventually transforming into the Ministry of Science and Technology (MOST) in 2014. The NSC drafted an agenda for the development of science and technology, and played a crucial role in setting up the Industrial Technology Research Institute (ITRI) in 1973 and Hsinchu Science Park in 1979 (Taiwan's version of Silicon Valley). ITRI and Hsinchu Science Park formed the cornerstones in transforming Taiwan into a high-tech island that produced almost 80 per cent of the world's notebook computers in the late 1990s and early 2000s under the moniker 'Made in Taiwan'.

2.2. Press coverage of science

Newspapers made up the most common form of media during this first period. Media coverage of science rarely reflected on knowledge values and, if it did, the tone was typically a state press release instead of a news report. Journalists focused on the political contexts of science rather than the scientific findings. From one science journalist's observation, the media coverage of science was either politically orientated or person-orientated (Jiang, 1985). Jiang's observation is that scientific knowledge was rarely the focus of the public media at that time.

Compared to high press circulation, only a few magazines were targeted at scientific topics for the public. The first magazine for the popularisation of science was *Public Science* (1951–74), which aimed at 'sparking public interest in scientific knowledge and popularising science education' (cited from Lu, 2018, p. 128). One of the most influential Taiwanese popular science journals is *Science Monthly* (1970–present), which was initiated by a group of Taiwanese students and scholars who had studied abroad (mostly in the United States) and established the journal. *Science Monthly* was expected to:

> serve as a good source of extracurricular reading and an effective public platform for information exchange. As a means of introducing and popularising new scientific knowledge, this platform should enlighten the public, cultivate scientific approaches, and establish a sound foundation for society (Lin, 2010, p. 90).

1 The Ten Major Construction Projects were major projects completed in Taiwan during 1974–79, including the Taiwan Taoyaun International Airport (formerly known as Chiang Kai-shek International Airport), the nuclear power plant and the first national highway.

These two magazines strongly reflect a belief in a knowledge-deficit between science and society. From the 1970s to the 1990s, *Science Monthly* played a crucial role in the popularisation of science in Taiwan, and not just through its printed issues: Y. C. Hsieh, one of the editors serving *Science Monthly* from 1976 to 1978, was later the first-known Taiwanese PhD graduate in science communication (1984, University of Illinois at Urbana-Champaign, the United States). Furthermore, the publishing company initiated and organised several science and technology conferences for the public in the 1980s.

During the Cold War era, Taiwan's society called for economic progress, leaving no place for ecology and the environment. Equipped with science and technology, Taiwan successfully transformed itself into a modern society. Science was generally viewed as hardware to advance everyday life and modern infrastructure, but rarely as software that could shape culture and the worldview. Furthermore, government financial aid and many returning students who had studied abroad in the United States created a strong public impact so that science and technology soon became entrenched in Taiwanese culture. Scientific development during this period barely responded to the environmental issues facing Taiwan. It was not until the rise of the environmental movement in the 1980s that the domestic scientific community finally turned its attention inward (Lin, 2010).

3. The Taiwan Miracle (1981–2000): Rooting science through education and communication

3.1. Science education

The rapid industrialisation and economic growth of Taiwan is widely known as the Taiwan Miracle. With an urgent need for fostering future scientists and technicians, the Department of Science Education (DSE) was established in 1982 under NSC. DSE played a crucial role in laying the cornerstone for science communication and aimed to strengthen, support and popularise leadership in science education. Since 1982, DSE funded research projects in science education and cooperated with the Ministry of Education to improve it in many ways—for example, science curriculum in higher education, teacher cultivation for high school science, special education programs for scientifically gifted students and the design of a national science exam. Starting in 1989, it began to fund science outreach programs such as a book series introducing key technologies, films on space science and weekly technology news. For the purpose of promoting people's understanding of science and

technology and enhancing basic scientific literacy, in 2000 DSE began to raise funding for its 'popular science education project' to support activities such as national or regional science outreach, exposition programs, hands-on science and creative science teaching plans. For example, aiming to promote science in local schools, National Science Week provides opportunities for pupils to have personal contact with scientists. Started in 2006, it combined with Taiwan's railway system and became the Taiwan Railways of Popular Science. During National Science Week, the 'popular science' train travels around the island, introducing scientific knowledge and promoting the importance of science. The project continues to this day and is regarded as the birthplace of Taiwanese's systematic science communication, though the target audience are mostly students. The spirit of science education nowadays shapes people's understanding of public science communication, which was primarily viewed as only informal science education at the beginning.

The first doctoral program at the Graduate Institute of Science Education was established at National Taiwan Normal University in 1986 to cultivate professionals in science education research. In 1994, the first master's program was established at the same institute. Through the 2010s, these programs have gradually expanded research topics into informal science education, science popularisation, science activities and science communication. The National Museum of Natural Science in Taichung City, the country's first science museum, opened in 1986 as part of a grand 12 cultural construction projects scheme in the 1980s. This museum's exhibition area is composed of a science centre, a space theatre, a life science department, a human culture department, an earth environment department and botanical garden. The aim is to inspire the public's interest in science, to help all levels of schools achieve their educational goals and to lay the groundwork for the long-term development of the natural sciences. In 1988, the Association of Science Education in Taiwan was formed by a group of scholars to promote academic research in science education and to enhance communication between academic institutions and among researchers. The first professional journal of science education, the *Chinese Journal of Science Education*, was published by this association in 1993. Many of its members later became the initiators for science communication in Taiwan.

Due to the demands of national construction and social development, the progression of science communication during this period was largely associated with science education, with no clear boundary between science communication and science education. Society's imagination of science communication strategies reflected the assumption of the deficit model, where a knowledge gap was assumed to exist between scientists and the general public. Be it an educational unit or a science museum, their main

purpose was to fill this knowledge gap. Such a top-down movement of science education turned out well. Scientific knowledge transmission methods were indeed very rapid and efficient, successfully fostering skilled workers and technicians in a short period of time and creating the economic miracle in Taiwan that so impressed Asian countries over the 1980s.

3.2. Popular science

On television, *Mr Ko and Ms Chi* became an important popular science program in 1983–84 (*Ko* is the phonetic sound for science in Mandarin Chinese and *Chi* represents technology). The program introduced useful science and technology to its audience. For example, the first episode was about home computers and the second about agricultural technology in Taiwan. Mr Ko was a scientist who explained various scientific knowledge, while the other moderator, Ms Chi (a retired stewardess), helped contextualise the knowledge and to make it relevant to daily life. The first governmental investment on a popular science film was *Space Exploration* in 1989. The video was produced by NASA in the United States. After its copyright was sold to Taiwan, the script was re-written and the video edited and dubbed.

Science soon became very popular. A well-known Japanese science magazine, *Newton,* was translated in 1983, changing the concept of introducing science to the masses. The Chinese version of *Scientific American* had been published since 2002, and the understanding of popular science broadened from explaining science knowledge in an understandable way, into viewing science as a distinct culture. In 1991, a series of books about integrating knowledge ranging from science to social science and the humanities was translated and published with the hope of redefining science culture in Taiwan. A member of the publisher's commission behind the series recalled that at that time, 'the popular science books we had in mind not only introduced scientific concepts with lay language, but also promoted popular science as a culture' (Lin, 2010, p. 230). The series consisted of six books, beginning with *Chaos: Making a new science*, by James Gleick. This series encouraged Taiwanese scientists to contribute efforts to popular science. Written by journalist Yu-Ling Yang and biologist Sze-Cheng Lo and published in 1996, *The story of snake venom research in Taiwan* illustrates the development of life science in the framework of snake venom research.

Translation has played an important role in popularising science to date. Aside from science magazines and books, comics from Japan and South Korea relating to science and technology are important for public science education. Translation in Taiwan has two meanings: the first is the *language*

translation from other languages into Chinese, and the second is changing *scientific* language into public language. Translation became an effective way for introducing science into Taiwan, but the strong dependency on foreign material might have hindered society and the scientific community in Taiwan from reflecting upon science in their own cultural context.

While popular science takes its root in Taiwan, science and technology journalism failed to seize any opportunities to construct their identity as professionals. Taiwanese journalists for science and technology formed an informal association in 1983, but the association did not transform into a professional community and remained as an annual get-together.

3.3. Criticism of science

People in Taiwan enjoyed the convenience of new technology without questioning the incompatibility between science and Taiwan's traditional beliefs/culture. It was not until the rise of environmental movements that a critical voice on science burst forth in the late 1980s. Taiwan's national policy targeting heavy industry and striving for strong economic growth came at the expense of its environment. It was common to see factory wastewater pollute farmlands and poison crops. The unfortunate result was doubt placed upon the correct application of science and technology, and even ambivalent public attitudes toward science and technology. Environmental initiatives developed from about 1985. Demonstrations erupted against controversial technological applications, such as those against nuclear power and against the building of a chemical factory by DuPont, revealing public concerns about threats from science and technology. Eventually, DuPont withdrew its investment plan in 1986, making it the first time in Taiwan that a foreign company had cancelled its investment due to environmental protests. In response to public pressure, the central government established the Environmental Protection Administration in 1987, followed by similar agencies that were set up at the local level.

These environmental movements and demonstrations contributed to public debates on the benefits and costs of science and technology. Taiwanese society no longer took science and technology for granted.

4. Sustainable development (2001–present): Increasing public engagement with science

4.1. Public participation in science and civic scientific literacy

From the 2000s to the present, the range of civil movements in Taiwan has broadened and diversified. In 2000, Taiwan experienced its first peaceful political transition of presidential leadership when the Democratic Progressive Party (DPP) replaced the KMT as government. Taiwanese people are now much more confident in the democratic system under which public engagement could result in positive social changes. With this shift in the political climate, public participation in social issues is now common, and social scientific issues are no exception.

The 'Survey of Civic Scientific Literacy' project funded by MOST collects regular nationwide surveys on the public's understanding of science and technology, starting from 2008. The findings have helped bring Taiwan into the realm of other countries like the US, those in the EU, China and elsewhere that possess empirical data about their citizens' attitudes toward science and technology. So far, this project has collected four representative samples: in 2008, 2012, 2015 and 2018.

Despite generally positive opinions toward science and technology, the public's *utility* attitudes (in answer to questions such as 'will science and technology make our future lives better') have been negatively impacted by social events such as illegal food additives and environmental pollution, while *worrying* attitudes (such as 'technological development creates an artificial inhumane way of living') remain constant over time. Attitudes differ across generations—the cohort analysis of Li (2019) reveals that the generation born after 1980 has a more negative view of science and technology compared to previous generations. The different attitudes between generations born before and after 1980 is a reflection of their views on the environment.

Despite its outstanding performance scores in PISA science assessment, in countries like Taiwan where scientific concepts are 'imported', it is common that an embedded cultural belief in the paranormal can co-exist with a culture of science (Bauer and Durant, 1997; Needham, 1956). Fortune-telling and astrological television programs are popular (Chiu, 2006; Tsai et al., 2012; Tseng et al., 2014). At first glance, it seems incompatible that Taiwanese on the one hand can pursue the newest technology, while on the other hand place their belief in fortune-telling. These survey results

indicate the unique scientific and cultural phenomena that have taken root in Taiwan. While Western science and technology are the newcomers, the obvious instrumentalisation of science and technology leads to a general view in Taiwan that science is understood as a means of spurring economics and connecting with the global world. But traditional Chinese science (like Chinese medicine, lunar calendar, Yijing, etc.) is still alive in people's daily life culture. Although Western science and traditional Chinese science seem to have few interactions, the two systems have a phenomenal co-existence, and each serves its own purposes in everyday life of Taiwanese people.

4.2. From the budding to blooming of science communication academia and practice

The atmosphere of public engagement has brought many changes in academia, especially in the new field of interdisciplinary research. The Taiwan Science, Technology & Society (STS) Association was established in 2008 and aims to promote research related to science and technology and seek creative solutions to problems. Members of Taiwan STS Association cover professions including historians, sociologists, philosophers, educators, scientists and engineers. While this association shares something in common with the Association of Science Education in Taiwan, due to the similar disciplinary make-up of their members, it has a different emphasis: more on the interdisciplinary perspectives of the overall social sciences and humanities, and more on research and promotion of policymaking and practical strategies for public participation in science (Huang, 2016).

Universities have seized opportunities to offer STS-related programs and courses, and new institutions have been established. The first Institute of Science, Technology and Society was formed at National Yang-Ming University in 2008. The year 2014 was a landmark for science communication. Feng Chia University announced the first bachelor program of science communication, while National Chung Cheng University offered the first master's program of science, technology communication and society. National Pingtung University then established the first department of science communication based on its graduate institute of Mathematics and Science Education Department. Today, about five to six related programs exist at different universities in Taiwan.

In 2007, MOST launched 'Development of Taiwan Science Communication Industry', which promotes science communication by integrating scholars, experts and media companies through a funding budget. Under the assistance and guidance of the project, subsidised units produce science news programs, science TV programs and science education films. With the government

heavily promoting this project, the Golden Bell Awards—the most important awards for Taiwanese television production—officially established the Science Program Award in 2012. The goal is to encourage more excellent science TV stories and to cultivate science into people's daily lives.

Acknowledging that expanding scientific and technological development has generated amazing results as well as many problems, MOST established a new discipline to deal with science communication in 2010: 'Education of Science Popularisation and Communication' (renamed in 2016 as 'Science, Technology, Society and Communication'). Six research domains are addressed: 1) science and technology governance; 2) technological research and development and society; 3) science and technology risk; 4) scientific literacy and education; 5) science and technology communication; and 6) culture, history, science, and technology. Since then, government funds have been steadily invested in research on science communication, as well as related subjects such as science education, history and philosophy of science, public health, health education, law, etc. This initiative can be regarded as an important milestone in deepening science communication theory and practice, and has also led to the burgeoning development of science communication.

With the government increasing the importance of communicating science to the public under its agenda, an article of the Fundamental Science and Technology Act was adopted in 2016, which ensures certain proportions of research budgets go to popularising science. Furthermore, using the UK Science Media Centre as a role model, MOST funded the first science media centre of Taiwan in 2017.

These implementations symbolically present the government's promise of advancing science communication, complementing the launch of new communication channels for the public by publicly funded scientific research organisations. The most significant one is by Academia Sinica, which in 2017 launched a website with a whole new perspective to engage the public with science. So far it has received a very good response. In the private sector, a science blog project launched in 2011 has since turned into an important website (PanSci) for popular science in Taiwan. PanSci is now the biggest and most significant knowledge community of science communicators, and a for-profit company PanMedia has created a whirlwind that has driven other scientific-related websites. Aiming to establish a knowledge ecosystem, the company promotes both online and offline courses and meetings related to science.

5. Challenges and opportunities

The field of modern science communication has rapidly developed in the last few decades in diversity and academic institutions. The idea of science communication in Taiwan has gradually transformed from 'science education' to 'public science education', and now to 'public communication of science'. The traditional top-down model and the belief of knowledge deficits remain predominant, yet the call for public engagement with science is becoming more intensive under the extension of democracy. Still, several obstacles need to be overcome should we look to further develop this issue.

In response to the wave of 'public engagement with science and technology' that arrived in Taiwan around the 2010s, public surveys show that public engagement remains much more talking than doing. The great majority of Taiwanese adults believe that people should participate in the decision-making process of any science and technology policy, but active participants in public activities—such as attending public meetings or hearings, donating money, or assisting with fundraising campaigns for scientific researchers—are only minor (Tsai, 2015; Li, 2019). Equipped by online technology, scholars and a few public initiatives (such as 'vTaiwan' and 'g0v') aim at pushing information transparency and civic participation. Technology has revolutionised public demonstrations, like the Sunflower Movement—a movement driven by a coalition of students and civic groups in 2014 to protest against the economic integration policies of the former KMT government. Civil initiatives now address science and technology policy. They believe that applying digital technology and social media can help encourage better communication, thus making public governance possible.

Viewed under a microscope, the poor-quality coverage of science by mainstream media is another big challenge. Issues include a lack of professional science journalists and coverage of science having to depend on translations of tabloid newspapers from Western countries. The dearth of professional science journalists makes it difficult to frame scientific knowledge properly and makes it hard to cultivate any form of scientific culture in society. Depending on news from scientific-competent Western countries, inadequate translations of foreign science news often lead to a 'double-distortion' effect (Huang, 2014) as well as detachment from scientific knowledge within society. Furthermore, the mainstream media tends to politicise science, even as science-related issues that attract public attention are highly politically ambivalent. It is thus a challenge to maintain public discussions of science in an open and reasonable tone without being distracted.

The rise of the internet has had an enormous impact on journalism's traditional ecosystem and has pushed mainstream media into an even deeper corner. Journalists are no longer the monopoly source for scientific information. Traditional media organisations can no longer afford to offer positions for science journalists. Thus, when seeking information about science and technology, the general public now typically first goes to individual blogsites or scientific-related websites. Issues such as fake news and misinformation in this online era make it even more crucial to have access to credible sources for information and opinion. The current general media environment leaves little room for anyone to be positive.

Science and technology together are regarded as an 'imported culture' for any in-depth image of the Taiwanese, and many factors, such as national dignity and self-esteem, are involved in disseminating scientific knowledge (Huang, 2016). As a country, Taiwan is proud that in such a short period it has caught up with the developmental pace in the world with regards to infrastructure and institutionalisation of science communication. New ideas, such as democratisation of science, open science or citizen science, are coming forth and making Taiwan rethink its understanding of science communication and the boundary between the autonomies of science and civil society. It is a never-ending struggle between scientists and science communicators, between reporting science accurately and reporting science attractively, as well as arguing about what should be compromised. We look forward to a day when science can be communicated in a reflective way, while at the same time different parties are shown their proper respect. Taiwan's own history has already aptly presented the interdependency between democracy and the modern development of science communication.

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Timeline

Event	Name	Date	Comment
First interactive science centre established.	National Science Education Center	1956	
First national (or large regional) science festival.	Science and Technology Week	2000	
An association of science writers or journalists or communicators established.	Science and Technology Journalists Association in Taiwan	1983	It is not officially registered, rather an informal association
First university courses to train science communicators.	Science Communication in National Chengchi University (NCCU) and opened by Dr Y.-C. Hsieh	1984	2014: Feng Chia University announced the first bachelor program of science communication
First master's students in science communication graduate.	National Chung Cheng University offered a master's in science, technology communication and society	2014	First graduate 2018
First PhD students in science communication graduate.	Journalism PhD program at National Chengchi University	1983 (journalism)	1984: First graduate Y.-C. Hsieh 'Science and the press in Taiwan', University of Illinois. 1986: Science education program at National Taiwan Normal University
First national conference in science communication.	Annual Conference for Science Communication	2007	Organised by the Development of Taiwan Science Communication Industry project
National government program to support science communication established.	DSE's Popular Science Education Project	2000	
First significant initiative or report on science communication.	Advisory book for science communication policy	2010	Kwan, S. J. (2010). *Taipei: Development of Taiwan Science Communication Industry*
National Science Week founded.	Science and Technology Week	2000	The theme of the first week was earthquakes, to commemorate the 921 earthquake in 1999

Event	Name	Date	Comment
First significant radio programs on science.	*The Secrets of Nature*	1983	Via the Police Broadcasting Service, hosted by Chang, Jhih-Jie
First significant TV programs on science.	*Mr Ko and Ms Chi*	1983	In Chinese pronunciation, Mr Ko refers to Mr Democracy, Ms Chi refers to Ms Technology
First awards for scientists or journalists or others for science communication.	Wu Ta-You Award for Science Writing	2002	
Other significant events.	Establishment of the Science Media Center Taiwan	2017	

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