

A NEW COMMUNICATION MODEL FOR POPULARIZATION OF SCIENCE TODAY: CONCERNING THE SCIENTIST ROLE CHANGES

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Abstract:

Nowadays popularization of science has been embodying its new rules and characteristics. Contrary to the old notion that scientists should act the subordinate role of the popularization of science, this paper shows that the diversity and specialization trend of subjects of popularization of science is unavoidable, especially due to the mass media development in this scientific democratic society, and so the traditional role of scientists in the popularization activity of science would also be changed accordingly. Based on the general communication model of mass media, this paper provides a new communication model showing the scientist role changes in modern popularization of science (such as public understanding of science), and discloses why scientific community has to face this reality and adapt to the new trend of the popularization of science. In the end, the author discusses some new conclusions and policy suggestions.

Key words: popularization of science; public understanding of science; communication model; scientist

Traditional notion of scientist role in PS

Since a long time ago, there has been a commonly accepted notion in the science community that scientists should act the subordinate role of the popularization of science (PS).

In Britain, the 1985 Royal Society report on Public Understanding of Science, known as the Bodmer Report, earnestly appealed that scientists should learn how to communicate with the general public and be delighted to do that, and it must be realized as their unshirkable duty. "It is clearly a part of each scientist's professional responsibility to promote the public understanding of science."¹

In 1999, the president of American Association for the Advancement of Science (AAAS) M. R. C. Greenwood called on at the annual meeting of science that American scientists should take part-time job at all kinds of schools, and promote the science education and the public understanding of science.²

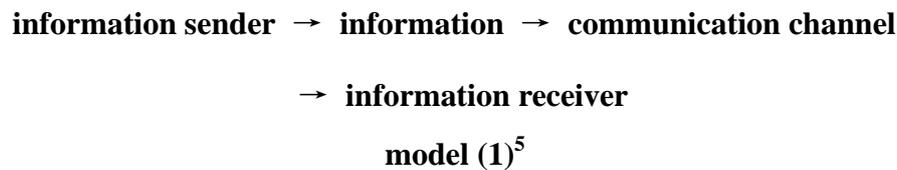
In 2000, at the China International Forum on Science Communication, chairman of the China Association for Science and Technology, Zhou Guangzhao, said that S&T researchers were the main forces for popular science work in China, and popularization of science was an unshirkable duty for scientists.³

It is true that in the history of science, scientists always play not only an important but also central role in the popularization of science. Many most famous scientists engaged their lives

in popularizing scientific knowledge to the ordinary people as they realized that popular science work was an inalienable part of their scientific research activities. Thanks to their endeavors, more and more people turned to accept, support, and even like science. Just as Carl Sagan objectively appraised Isaac Asimov in 1992 that we never know how many scientists working at the scientific frontiers got their initial inspiration through a book, an article, or a story written by Asimov, we neither know how many ordinary people support the science at the same reason.⁴

A new communication model for scientists in PS

Among the theories of mass communication there is a basic model, which includes four elements:



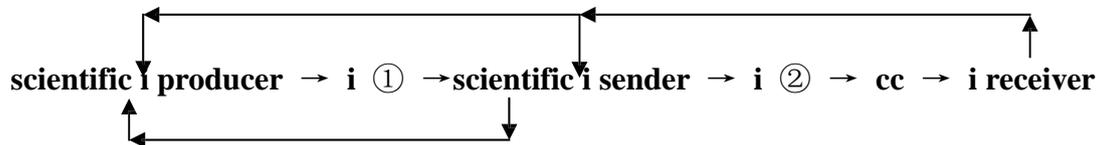
From model (1), we can see that the information sender sends the information through the communication channel to the information receiver. However, in this traditional model there is a tacit premise which means that information producer is also the information sender, they are the same one. This is common in the general news report, for instance, a journalist at a live scene takes notes of what he sees and listens, then writes a timely news and sends it. Here the journalist is both the information producer and the information sender. In the early time of science popularization it was the fact that scientists played as both the scientific information producer and the scientific information sender were also common, the most representative figures are Giordano Bruno, Galileo, Thomas Henry Huxley, Michael Faraday and also the Royal Society of Britain.

However, nowadays the popularization of science, which now also calls public understanding of science (PUS) or dialogue between science and public, has been showing new characteristics and its own laws. First, the popular science work is becoming the big concern of government and the whole society, not a patent of a few particular communities. Second, in the information and networking society, especially due to the appearance of television and internet, the mass media is playing an increasingly prominent role in the public understanding of science as mass media has become the first choice for public getting scientific information on one side, and scientists have to rely on mass media today to do some popular science works on the other side. Third, popularization of science is also becoming a professional area as science communication becomes a major for more and more college students. These new changes will surely affect the ways and traditional role of scientists in the popularization of science.

As the first scientific journalist appeared in 20—30s of 20th century, scientific journalist had become a formal social vocation. In the modern activities of popularization of science, we can often see that the scientific information producer and the scientific information sender have

been separated. Scientific journalist, as the scientific information sender, more and more faces directly to the public than the scientist, and the latter as the scientific information producer, is often behind the journalist and provides various professional helps to him. So today it's not difficult to see a diversity and specialization trend of subjects of popularization of science.

And then the author suggests a new model of scientific communication as following:



i: information

cc: communication channel

model (2)

In model (2), we divide “information sender” in model (1) into two parts: scientific information producer and scientific information sender, and divide “information” in model (1) into two parts too: information① and information②. From model (2) we can still see the feedback from information receiver to both scientific information producer and scientific information sender, and feedback form scientific information sender to scientific information producer too.

Some new conclusions and suggestions

By analyzing the model (2) of scientific communication and comparing it with that traditional model (1), we can draw some new conclusions.

First of all, literary works of popularization of science, such as stories, articles and books, should be admitted as jobs of new creations. From the model (2) we can see that information ①, which is mostly communicated inside the scientific community, is quite different with the information②, which is facing directly to the public. There is supposed to be much effort to change information① flooding with scientific jargons into the information② acceptable to average people. And this kind of effort should be respected as new creations by the whole society.

Secondly, there should be an independent evaluation system for popular science works, which should not be belittled again under the standards of academic findings of scientific research. There are many differences on the language styles, communication targets, and evaluation standards, and it's the fact that the scientific community has always been reluctant to admit popular science works as academic achievement. As a result, it's not strange to observe that scientists who has touched popular science works are often paid for their slow promotion in

their academic community. For example, Carl Sagan who is the Mr. Science in US, has never been admitted by the National Academy of Sciences.

Thirdly, scientists will not be the main subject of popularization of science today. From the new model of scientific communication, we can conclude that mass media workers (including scientific journalists, scientific editors, popular science writers, organizers of popular science work, etc.) who as the scientific information sender will be the direct and professional subject of popularization of science. Scientists, while as the scientific information producer, will be the indirect and unprofessional subject of popular science work. So, nowadays popularization of science should not be responsible by scientists only.

Last, but not the least, it should not be a part of each scientist's professional responsibility to promote the public understanding of science. As science is becoming more and more specialized and professional, popularization of science is also developing into a so different field with science. How to validly communicate to the public, how to make science interesting and easily acceptable to laymen, how science to get the understanding and support from populace, to solve these kinds of problems needs vocational skills and special training, and also professional research work. It's clearly unreasonable and impractical to ask every scientist to take that unshirkable duty of popularization of science. It is less difficult to see that in the future, scientists also need professional help, even direction or training from mass media to do the popular science work.

Admittedly, it's not the author's intention to give impression that scientists have no duty of popularization of science today. Scientists, as the scientific information producer, are always the initial knowledge source of public understanding of science. Without understanding and support from the ordinary people, science can't move ahead in today's scientific democratic society. The recent cloning research and gene food, which triggered the tornado of public discussion all over the world, are cases of this point. So, scientific community as a whole still has to pay greater attention to the popular science work than before.

Nowadays as mass media—the professional scientific information sender, is becoming a bridge between science and public in the informational and networking society, it's important for scientists to provide more help and professional suggestions to the mass media in order to promote the public understanding of science together. For instance, after Three-li Island Accident America established the Scientists' Institute for Public Information's Media Resource Service (SIPI) in 1980, which could provide the names of various fields of scientists immediately when mass media needs them for making scientific programs or facing problems concerning science and technology. In Britain, some universities have asked their students majoring in the natural sciences and engineering to attend science communicating skills class in case of their vocational possibility concerning public understanding of science in the future⁶.

And last, science community also should encourage those particular members, who have interests and talents in the popular science work, to do both the research work and the popular science work (act again as that traditional role of both the scientific information producer and the scientific information sender), or to become professional scientific information senders.

Science community should provide a suitable mechanism and environment for these members.

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