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Thinking on the Reasons and Countermeasures of the Failure and Misrepresentation of Science and Technology Transmission

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Abstract

This paper makes a comparative analysis of the phenomena of communication failure and misrepresentation in the East and the West history of science and technology communication. Based on the analysis, the authors find out the causes of this phenomenon and puts forward their own thinking and countermeasures. They expect to arouse the attention of scientific and technological media workers, so as to better inherit the knowledge and wisdom of human beings.

Key words: Science and technology transmission; Failure; Misrepresentation; Reason; Countermeasure

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INTRODUCTION

Modern media has greatly broken the time and space constraints, but there are still many factors that constrain the efficiency and authenticity of science and technology communication. We can find these influencing factors from many historical facts and events, and study the reasons for their negative impact on the spread of science and technology, in order to find a solution.

1. ANALYSIS OF THE REASONS FOR THE FAILURE AND MISREPRESENTATION OF SCIENCE AND TECHNOLOGY COMMUNICATION

1.1 The Cultural Thought Limitations of Media Audiences Lead to Propagation Failure

The ultimate goal of the spread of any kind of science and technology is to improve knowledge level of the media audience, so as to achieve the purpose of developing social productive forces. Therefore, a key factor in the process of science and technology communication is the reception capacity of the media audience, while the media audience's ability to accept science and technology is mainly determined by their own level of cultural thought. In addition, this ability to be affected by such as: customs, ways of thinking, traditional ideas, religious beliefs and other factors. Let us examine the development history of media, science, technology, and society in Europe and Asia. And verify the impact of the cultural and ideological level of media audiences on the spread of science and technology from different development process of the East and the West.

In the Middle Ages (about AD 476-AD 1453) in Europe, the feudal system, characterized by religious theocracy, had been constraining and hindering the spread of science in a long term. Religious leaders hold national events, developed scholastic philosophy, established the inquisition that was not allowed to argue. The taboo and precepts of religion regulated people's clothing, food, and live. Medieval Europe was the world of religion. Religion was the core of national spiritual civilization, and almost all the forms of culture were manifested in religious style. In order to maintain their own rule, religious leaders brutally repressed the so-called "heresy". The death penalty was widely used for "heresy". As a result, people's thinking was constrained,

and new ideas of science and technology could not be widely disseminated.

At the same time, in the development process of oriental feudal society represented by the ancient China, after experiencing the period of "Hundred Schools of Thought" in the Spring and Autumn Warring States period (770 BC to 221 BC), people's thinking had been greatly liberated. In philosophy, Confucianism, Legalism, Taoism, Mohism and other schools of thought were created. In science and technology, there were four world-famous inventions. Various academic ideas, new techniques and inventions emerged one after another. Liberation and widespread dissemination in ideology and culture had kept China feudal society's science and technology development being ahead of Medieval Europe's development during a thousand years after the Spring and Autumn Warring States period.

But in the end of the Middle Ages, the Renaissance movement broke out in Europe, national consciousness beginning to awaken, the knowledge and spirit of the people being greatly liberated. The pioneers represented by Copernicus, Columbus, Shakespeare and Da Vinci brought a great deal of new ideas, new knowledge and new techniques to the people. Simultaneously the invention and large-scale use of printing made emerging ideas and techniques spread in an unprecedented depth and breadth. Thus science and society were greatly developed, breaking the monopoly of religious theocracy, ending the dark ages of medieval Europe.

However, in the same age of the East, China's feudal society gradually entered the boring era of "Deposing 100, only Confucianism." Confucianism imprisoned people's minds for thousands of years, excluding foreign ideas, overbearing, retreating and long-term hindering the acquisition and dissemination of technology. All of these gradually led to that the subsequent development of Western society was much ahead of the East China. Get behind, get punished. The invasion of the West in the 19th century forced China to open its doors and began to introduce new technology. But this introduction was carried out in the original old ideas and cultural patterns, and deep-rooted doctrine of the mean and conservative Confucianism, seriously restricting the spread of science and technology. Therefore, the Western advanced technology had little effect on China's social development at that time.

In modern times, there were no shortage of such cases in the history of many countries' economic development. In 1962, the Iranian king Pahlavi launched a reform aimed at the rapid modernization of the economy and society. The government introduced western science, technology and culture on a large scale, and launched the so-called non-bleeding revolution that was "white revolution". But after the initial short-term economic development, the social gap between rich and poor not only did not shrink, but increased. The corruption of the social system had made the wealth available to a small number of government officials and members of the royal family. In the meantime, many of the forced social reforms, such as forcing women to remove scarves, limiting religious power, had also been strongly opposed by traditional religious consciousness and cultures, eventually evolving into a strong cultural and social conflict, and leading to the collapse of the king and the failure of science and technology transmission.

1.2 Artificially Distorting or Concealing Content Causes the Misrepresentation

In the process of science and technology communication, besides the important factor of the media audience's culture and ideological literacy, the human intervention can not be ignored. In many cases, the content of science and technology dissemination can easily be changed, distorted, or even concealed by human factors. These processes of communication are often characterized by poor transparency and interaction, forced inculcation, deception, and so on. It can be said that human intervention is another important reason why the media can not faithfully spread science and technology.

In Japan, there was a very enlightening thing. Japan's Kansai TV station in a life health program said that Natto, a unique Japanese traditional food, contains isoflavones that promote the body to secrete some hormone, so it can help people to diet. Eating natto every day, people can quickly lose weight in the short term. This remark led to the frenzied purchase of natto by the Japanese people, especially young and middle-aged women. Due to surge in sales of natto, there had been a phenomenon of short supply. But at this point, the president of the Kansai TV station made a statement apologizing to the audience. He said this report was "false positives", and the relevant data and indicators were also forged by television editors.

In fact, the real situation is that natto is made of soybean fermented by bacillus natto, and it contains a lot of protein, vitamins and minerals. It has many health care functions such as: prevention of osteoporosis and cerebral infarction, adjusting the stomach, anti-bacterial and anti-cancer, lowering blood pressure, improving women's menopausal syndrome and improving immunity, etc. It is usually eaten with eggs, onions and mustard, or you can pull it to the filamentous, then eat it with rice. Natto is a kind of fermented food, and there is a unique "smell", so in Japan it is not everyone likes to eat it.

In view of the ratings, the seller's interests and other factors, the TV station had tampered with facts and data. They invented such a false scientific knowledge to mislead the audience. Then, the TV station leader came forward to apologize and call it "false positives". The reason for this phenomenon was that the state and

society did not have a corresponding sanction for similar incidents, as a result, it had objectively contributed a lot to this practice and phenomenon.

This incident tells us that television media, like other mass media, has shown a lot of negative effects that can not be ignored when it is used in the spread of technology. As the mass media tends to maximize profits as the first goal of business, they are enthusiastic about the pursuit of sensational effects, unconventional and exciting things, a strong attraction to the audience, so as to obtain a higher rating. They are not rigorous in the dissemination of technology, and in order to improve their ratings, they often make different degrees of fabrication, exaggeration and rewriting of scientific and technological knowledge. These actions undoubtedly impede the spread of science. In addition, due to occupational and institutional constraints, few high-level scientific workers engaged in scientific and technological communication work, which makes it difficult for people engaged in media technology reports and scientific & technological propaganda to be competent for their work. All these reasons have led to frequent media misrepresentation in the spread of science and technology.

2. RELEVANT COUNTERMEASURES AND THOUGHTS ON PROMOTING THE SPREAD OF SCIENCE AND TECHNOLOGY

2.1 Improving the People's Media Literacy and Constructing the Learning Society

National media literacy, that is, the people's quality of interpreting, understanding, criticizing and eventually using the media information to serve the individuals and society.

The darkness of Europe before the end of the Middle Ages, the millennium Chinese Confucian rule and countless historical facts tell us that the media literacy, cultural literacy and civilization of the audience are the key factors in the final reach of science and technology communication.

Many developed countries started earlier in this area. As early as 1985, the British government put forward the new idea of "public understanding of science". And based on the concept, took a series of measures, such as opening advanced media research courses in the school, establishing teacher training programs of media literacy education in many colleges, and so on. "Public understanding of science" has a very important position in the history of the development of science and technology in the world. It criticized the traditional infusion mode, emphasizing the two-way communication between scientists and the public, advocating communication and dialogue, enhancing the public's overall understanding of scientific knowledge, the nature and methods of scientific research, the relationship between research and application, etc. And thus, it eliminated the sense of distance between science and media audience. The concept marks the beginning of human society to study the cultivation of media literacy in a conscious, organized and national way, and put it into practice.

Australia is regarded as the contemporary western country that pays most attention to media literacy education. In Australia, almost all states have set up media literacy education courses or treated it as a student's compulsory content in english classes.

Canada in North America is also a country where media literacy education is widely available. Due to the efforts of the Association for Media Literacy, Ontario has first introduced media literacy education into classroom education. By 1987, there had been already 50 colleges and universities in Canada offering more than 90 media literacy programs, including short courses and complete 4-year degree programs. And by the early 90s, media literacy education associations had been established in most of Canada's provinces.

In Germany, knowledge of media literacy is often taught in courses such as politics, social common sense and social studies. It is also the main propaganda content of teachers colleges, adult education institutions, religious organizations and community workers. The Publishing Research Institute of University of Mainz conducted a study on the popularity of media education in some secondary schools. According to the survey, 91% of the 199 teachers surveyed had taught in the classroom about mass media, of which 72% were regularly involved in such subjects. The purpose of these teachers engaged in media education is not only to improve students' communication skills, but also to help students establish civic awareness and guide students to participate in social decision-making process in a more positive attitude.

Learning from the experience of modern countries, with regard to the cultivation of national media literacy, we should pay special attention to the following points.

(a) Based on universities, research institutions and other subjects, set up specialized media literacy research institutions. Study the professional experience of advanced countries, and cultivate professional media literacy research talent.

(b)We should include media literacy in the national education system and cultivate the ability of young people and adults to interpret, criticize and use the media information for personal life and social development.

In the process of cultivating the national media literacy, we should emphasize the subjective initiative, and actively recognize, criticize and use the media information. Because the media information is subject to a variety

of environmental and institutional impact, its integrity, accuracy, and even authenticity should be more or less biased. As media audiences, we should not always blindly accept, but should take a critical look to understand it, to identify its authenticity and objectivity. Meanwhile, the whole process is also our own learning and improvement process, that is, the whole society learning and growth process.

2.2 Improving the Scientific Literacy of Media Workers and Establishing a Professional Since & Technology Media Team

In the United States, the Boston Globe set up a science department with more than a dozen journalists and professionals specialized in scientific and technical reporting. The New York Times has a team of senior journalists and editors, including not only expert journalists with doctorates in medicine and practitioner's licenses, but also the "adventure interview expert" reporters who have traveled five continents and tracked interviews with a number of technology topics. These highly skilled scientific and technical journalists often go deep into the starting point of major technology discovery, and send back first-hand accurate coverage.

British BBC television has long been known for shooting science videos, and its staff responsible for producing popular science films have high scientific accomplishment. In order to ensure the preciseness of content, popular science TV films were examined, or recorded by scientists in various fields. Rough Sciences in the BBC is a very successful series of popular science programs. Rough Sciences in the BBC is a very successful series of popular science programs. The program, in the form of live pictures, allows many real scientists or technology communicators to solve scientific problems in a real situation and in a scientific manner. It is not only light and entertaining, but also explains scientific knowledge and stimulates people's interest in scientific discovery.

In the process of setting up a high level and specialized scientific and technological media team, media agencies should pay attention to improve the scientific literacy of workers, optimizing the structure of the media team. Similarly, the government should also play an important role in guiding the media institutions to become more scientific and professional.

2.3 Strengthening the Interaction Between Media Audiences and Media Organizations

Interaction is an important guarantee of the transparency, authenticity and impartiality of the dissemination.

In addition, in order to achieve the interaction, it is very important to construct a practical communication channel between the media audience and the media organization. Technically, these interaction and communication can be implemented mainly through high-speed and convenient wireless network media including wireless TV, mobile phone, wireless Internet and so on. Wireless network media and traditional Internet media both have interactive features, but they have already been different. Wireless network media is not easy to be affected by traditional network channels, and it is easier to spread, easier to form a broader mechanism of sharing and interaction. Moreover, effective interaction mechanisms should encompass a wider range of social members. We can imagine a wireless Internet media alliance that includes the media, the audience and the government, which will realize the interactive communication among the media, the audience, the scientific community and the government.

In this regard, the British government's approach is worth learning. When a policy is made, especially the policy that are closely related to public life, the British government will engage the public extensively before making decisions. This will not only ensure the public's right to know and participate, but also strengthen their two-way communication. The British Prime Minister, Minister of trade and industry, and technology minister often speech, criticizing the anti-science thoughts, encouraging young people to study science and engineering. And they also call on scientists to listen to the public's ideas, to promote more communication between the public and scientists, and to let the public know what scientific activities scientists are doing.

2.4 Introducing Assessment Review and Incentive Mechanisms

(a) Assessment review mechanism

We still need to emphasize interactivity in the introduction of evaluation review system in the field of science and technology communication, that is, all the people to be evaluated (such as media organizations and workers), the media audience, the scientific community and the relevant government departments should be included in the assessment system. Only in this way can we guarantee the role of the evaluation review mechanism in guiding the dissemination process.

(b) Incentive and restraint mechanisms

For any member of society and its social activities, one of the ultimate goal of its existence is to get social recognition and affirmation, otherwise there is no value and significance. Similarly, science and technology communication activities and people engaged in this cause also need social identity. Just as the Nobel Prize has inspired countless scientists to devote themselves to scientific research, science and technology communication business also need an effective incentive mechanism, and its meaning is far from simple material reward. Of course, besides the incentive mechanism, it is also very necessary to establish a corresponding restraint mechanism by the government, including a platform of policy and regulation, to guide, standardize and manage the spread of

science and technology from the legal level, and to give appropriate financial tilt.

CONCLUSION

Science and technology are the key factors to promote the development of social productive forces. The spread and transmission of science and technology are driving human society to a more advanced civilization. Although life is short, but the knowledge and culture created by mankind is eternal, or we can say, it is the continuation of our lives and the inheritance of social civilization. Hope that each of us can join in the great process of heritage civilization.

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