Journal of Scientific Temper
Vol 3(1&2), Jan-Mar & Apr-Jun 2015, pp. 12-33

RESEARCH ARTICLE

Social Context of Science Communication: Local Science Communication Strategy

CHENG DONGHONG

China Association for Science and Technology (CAST)
3 Fuxing Road, Beijing, China

Email: dhcheng@cast.org.cn

ABSTRACT

The article focuses on 'social context' research in the area of science communication. It further proposes to take social context as a research perspective and analysis methodology to tackle the issue of strategic planning in science communication. The survey of journals reveals that the number of papers published on the social context of science communication is far limited compared to other issues that have been dealt with by the scholars working in this area. The article makes a case for conducting deeper research on definition and description of contextual-science-communication. There is sufficient literature available on comparative studies in science communication and public understanding of science, however since most of the scholars have not taken 'social context' into account, it provides limited understanding of reality across cultures.

KEYWORDS: Public Understanding of Science (PUS), Social Context, Science Communication, Science Popularisation, Cognition

Introduction

The Social Context of Science Communication

An interpretation of the social context of science communication

Discussions of the concept of '*context of situation*'

The concept of 'context of situation' is originally applied in linguistic research. It means an associated complex of all the factors required to determine the meaning of a word, sentence or

text. The Polish anthropologist Malinowski first used the term 'context of situation'. He believed that people's words are to be considered in the context of the prevailing situation if one wants to understand their words correctly. G. Frege took the context as a principle so as to claim that the meaning of a word or sentence must be interpreted in its specific context, namely, understood in a specific context of situation (Yidong, 2000).

The development of context research has gone through two stages, which are the traditional context research stage and the cognitive context stage (Huaxin, 2004). The traditional context research regards the context as an objective background, and then discusses its connotation, classification, function, and structure. It was widely accepted that similar objective contextual features are certain to cause similar linguistic meaning during this stage. In the stage of cognitive context research, linguists pointed out the insufficiency of subject research in traditional context research and criticized research based on the nature and function of language only in terms of human society and environment. Instead, they advocated increased research into the role of human psychological cognition, which makes up for and enriches the insufficiency of traditional context to some extent.

Social context in the sociology of science

The development of context research has gradually spread beyond research in the linguistic domain. Thus it extends to be a kind of research on social context with unique social ideology. Hu Zhuanglin (2010) argued that the study of context has presented the trend 'from linguistic (linguistic context), idealization (linguistic context and non-linguistic context), triple (linguistic context, physical context and common knowledge), towards diversification (world knowledge, collective knowledge, specific knowledge, participant, degree of formality, media, etc.)'. Guo Guichun (2002) put forward that the extension of context cannot only mean the previous and the following sentence, and text or a specific text, but also an interpretative theory, normal form, a specific historical period, historical background, and even covers all social, historical, cultural, scientific, political, and psychological factors and all interrelated

and interactive factors. In a word, its connotation is determining a certain specific context of situation for the meaning.

At present, the concept of 'context of situation' is widely applied in the philosophy of science and technology, the history of science and technology and the sociology of science and gradually becomes a kind of contextual analysis method. In the research perspective of the sociology of science, the contextual analysis method takes science as 'text', looking for its meaning and essence in a specific 'context of situation' and advocates interpreting science in correlation with multiple social factors (Yu, 2011).

Social context in science communication

Science communication, as a complex of various disciplines, emerges with scientific development and social progress. The social context of science communication has as an inevitable result the extension of social context to the domain of science (Guoxun, 2004). Huang Huaxin (2004) put forward that 'the social context of science communication' has two types of structural patterns. The one that we call background context — meaning political context, economic context, historical context and cultural context — indirectly influences science communication through background penetration. The other is context of situation — meaning text context, occasion context, purpose context and psychological context — directly integrated into the circumstances of science communication.

This paper is based on a study of hierarchical relationships between context, social context and science communication context. The social context of science communication can be divided into the external context and the internal context of science communication. Science communication, as a sub-system of society, is bound to be influenced by all social factors. We consider the interactions in the external social context, including factors like economy, culture, politics, history and science communication, as the external context of science communication.

All subjects are involved in the science communication sub-system and the communication ecological system formed by

these subjects can be regarded as the internal context of science communication. Hence, this article considers that the social context is the external environment for science communication, which is also the basic starting point of the present research.

The changing social context of science communication

The Social Context of science communication is not considered immutable. The development of globalization brings change to social structure and inevitably affects science communication at all levels so as to have a profound influence on it. Thus it follows that we find there are several changes taking place in the social context of science communication around the world.

The relationship between science and society is closer

Modern science is influencing the intelligence of the whole society on an unprecedented scale and with such tremendous power that its social status and the function of science and technology improve rapidly, which is the new feature of the science and society relationship in the new century. Science and society have built an increasingly close and diversified relationship. Science is becoming an important part of society while the process of society 'scientization' and science 'socialization' is developing rapidly. As a result, science and technology innovation has become a crucial motive power of social progress.

Science and technology development has become the basic driving force of the economy and society, and the strength of science and technology has become an important indicator in measuring overall national strength. Meanwhile, the framework of world competition is decided by innovation capacity. Most countries set up science and technology innovation plans as the core driving force to promote national and regional development and then carry out strategic implementation. Therefore, science and technology input is gradually increased. It is estimated that Horizon 2020 will receive € 70.2 billion for 7 years from 2014 onwards (EU, 2020). There is a comprehensive increasing demand for science communication aimed at the society followed by a constant improvement of scale and speed

in science and technology creation, communication and application.

The relationship between science and the public is getting closer

The interpenetration of science and society is getting deeper, which brings technicalization into the social environment and daily life. In daily life, public dependence on S&T is increasing. However, there are more and more problems brought on by the development and application of science and technology, and the public becomes anxious about these problems. In that case, many scientific and technological problems also become public social issues. Appropriate consciousness of the public in the development, application and decision-making of science and technology is improving constantly and the public's right to know, right to expression and right to participate and debate are constantly improved. The formulation of S&T policies and the input of major science and technology projects encounter greater pressure from the public. Improper handling of the relationship between science and the public causes the public to misunderstand and even gives rise to social public incidents. The dispute that arose in the process of the approval of the PX project in China proved to be a typical case. New developments in the relationship between science and the public highlight the importance of science and technology communication.

The rapid spread of modern media technology

The rapid development of modern information technology has provoked the appearance of media applications in a new media era. The commercialization of the Internet, which has symbolized the birth of the new media era since 1992, arose from the birth and socialization applications of the Internet, substantially opening up media expression as well as a new era of science communication.

With the development of new media technology, new media technology represented by Internet and the mobile web begin to manifest their strong spread of influence. Along with the gradual expansion of the scope of its application, the new media turns into a dominant social media to a certain degree, and breaks

away from the traditional communication structure so as to form new communication ecology. Science communication contains new features in the new media ecology. For instance, the public can obtain science and technology information through new media conveniently, or spread and express their own wishes and viewpoints, thus influencing government science and technology policy-making and behavior. New media technology provides new platforms, new approaches and new means for science communication. The public can achieve self-obtaining and ubiquitous learning of science and technology information.

The Situation of Diversification in Science Communication Brought on by China's Social Context

Some characteristics of China's social context may affect science communication

Compared to other countries, the Chinese social context is characterized by significant localness, these local features being embodied in society, economy, culture, science and technology, history and other aspects. China's science communication is not only faced with common social context changes which are the same as the rest of the world, but is also faced with another layer of challenge, which is brought on by China's distinctive social context with localized characteristics. Through the comprehensive consideration of China's social context, the author thinks that the following two aspects of China's social context characteristics directly influence science communication:

Unbalanced regional development brought about by geographical structure

China covers a wide geographic area with extensive longitude and latitude, and a complicated and varied landscape. The terrain basically varies from high-altitude in the west to low-lying in the east. China is adjacent to Eurasia, the largest continent in the world, and on the edge of the Pacific Ocean, the most extensive ocean in the world, where a monsoon climate prevails. Climate resources are distributed unevenly and most resources are located in the subtropical zone and the temperate zone, with only

a small part of resources located in the tropical zone. Rainfall decreases progressively from southeast to northwest (Yue & Tang, 2005). For instance, coastal areas of Southeast China have a monsoon climate and abundant water and heat resources. The northwest area is of temperate grassland and temperate desert climate and short of water resources. Eastern China is the coastal area of the continental shelf and has abundant oil resources, there is abundant oil, gas, and coal nearby. The coastal areas of Southeast China are a foreign opening area at the initial stage of the reform and opening up, with flourishing foreign trade. The northwest areas have abundant biological resources, such as wool, high-quality dairy farming, etc. Coastal cities have superior geographical conditions and large ports. Parts of coastal areas have famous scenic spots or developed heavy industry. Alternatively, these areas have abundant marine resources and developed tertiary industry. At the same time, the difference in state support for different regions is also the reason that causes the imbalance of economic development in different regions in China.

Geographical features not only have an impact on social and economic development, but also form cultural environments with local characteristics. Research shows that China's coastal areas absorb advanced culture and technology in the world, as the window communicating with the world. The cultural development is of openness and compatibility, hence the cultural industry is of various types. With achievements of the emerging cultural industry combining with culture, the development of S&T is prominent in coastal areas with high technology and an accumulation of professional talents. The coastal areas consist of flat terrains and extensive sandy beach areas, which are suitable for cultural activities related to the ocean and thus to the development of cultural industries such as sports, leisure, tourism, etc. The inland areas are populated areas of the minorities. Due to land formation and people's awareness, most ethnic minorities maintain primitiveness, non-sophistication and uniqueness. It is this ethnic culture with characteristic styles that make for abundant folk culture, folk arts, and folktales of the minorities, so that it becomes an important part of cultural resources. Eastern coastal areas have been flourishing in culture and economy since ancient times. Priority is given to economic

and cultural development and the rate of development exceeds that of some inland cities. Many mountains, basins and plateaus in inland areas of the west make transport inconvenient and limit exchanges between the area and the outside world to a great degree, therefore causing the poor circulation of resources. People's tendency to reject new things greatly reduces domestic demand. It not only limits cultural communication and diffusion, as well as the development of a cultural industry in the area, but also limits understanding of the outside world for the culture of inland areas and economic and cultural development.

The characteristics of geographic structure cause an unbalanced objective social context of regional development in Chinese society. Data from a report on China's Human Development Index by Renmin University (2012) showed that the regional difference of comprehensive development level of China's society and economy is escalating since 2005 (Wei, 2012). The regional difference of index of people's living standards is high and increasing year by year, thus causing the regional difference in the overall development level of society and the economy to increase gradually, and the imbalance in regional development to be remarkable.

The characteristics of localness in the Chinese population structure

Data from the National Bureau of Statistics of China showed that Chinese citizen's structure possesses significant features of localness in natural structure, social structure and consumption structure. In terms of the overall natural structure of Chinese citizens, the proportion of Chinese urban and rural residents is close to 1:1. The sex ratio is 1.05:1. The old-age dependency ratio of Chinese citizens was 12.3% in 2011 and the natural structure of citizens tends to be aging obviously (National Bureau of Statistics of China, 2010).

In terms of the social structure of the Chinese population, although the educational level of Chinese citizens has improved significantly, as in 2011 Chinese citizen's per capita years spent in education was 8.5 years, the new labor force's average years of schooling was over 10 years, both of these figures were above

the world average (*People's Daily Online*, 2013). The general education level of the Chinese population is still low. Data from the sixth (2010) census showed that people receiving higher education and above accounted for 8.9% and people receiving secondary education accounted for 53%. In addition, people receiving primary education accounted for 27% and the illiteracy rate was 4.1%.

In terms of Chinese citizens' consumption structure, the consumption of China's urban and rural households is obviously differentiated, and the consumption of a Chinese family is drastically differentiated from the consumption level of developed countries. In 2011, the per capita disposable income of China's urban households was 19,109.4 Yuan and that of China's rural households was 5,919.0 Yuan. It is worth noting that the annual per capita service consumption of culture, education and entertainment of urban households was 1627.6 Yuan and that of rural households was 366.7 Yuan in cash. As for cash outlay for culture, education and entertainment in each household, that of China is very much lower than that of developed countries.

Moreover, the structure of the Chinese population is in a phase of fast flow and change. The crowds of 'new urban residents' who come to work in cities and are settled in cities are increasing sharply. The Report on the Development of the Floating Population in China in 2013 issued by the National Health and Family Planning Commission in September 2013 showed that there was a 236 million floating population in China in 2012, namely, there was one floating person in six people. The floating population tends to be younger in recent years. The average age of the floating population was about 28 years in 2012 and the majority of the floating population of labour age was born after 1980. Compared with the last generation of 'new urban residents', the new floating population of leaver age was seven years ahead of schedule. It was written in the report: 'The distance of the flow was longer and the reason for the flow was diversified, and they tend to be settled in work places and prefer large cities.'

To sum up, under the vision of the globalization of science communication, social context of science communication is

experiencing a changing relationship between science and society, between science and the public, and new information technology is booming. In the localized perspective, science communication also needs to deal with China's local social context characterized by urban-rural imbalance, a regional development imbalance and the diversity of population structure. This composite overlay of various factors in the Chinese social context creates the trend towards complication in science communication development, and brings about the diversity of public demand for science communication.

The diversity of Chinese citizens' demands for science communication

The social context of science communication in China presents both common features of globalization, and distinct local characteristics. Its influence is highlighted in the imbalance between the development of Chinese civic scientific literacy and the diversified demand of the Chinese public for science communication.

Imbalance in the development of Chinese civic scientific literacy

China's geographical structure causes unbalanced development of economy and culture, as well as urban and rural differences in population structure, which is also the root factor of the imbalance in the development of Chinese civic scientific literacy. Scientific literacy levels of Chinese citizens are significantly differentiated according to the 8th Civic Scientific Literacy Survey in China, which was carried out in 2010.

Scientific literacy levels of Chinese citizens are significantly differentiated between urban and rural areas. With the gap of 3.1 percent points, the proportion of urban citizens with scientific literacy among Chinese citizens is 4.9% and that of rural residents with scientific literacy is 1.8%. The development gap between regions is also prominent; residents with scientific literacy living in the east account for 4.6%, which is obviously higher than that in the central areas and west areas. The difference between central areas and west areas is not

obvious, respectively 2.6% for the central areas and 2.3% for the west areas.

Scientific literacy level is also influenced by age and education level. The proportion of citizens with basic scientific literacy decreases with increasing age, while it increases with improvement of the level of education. The scientific literacy level among citizens undertaking different professions is also different. The professional technicians have the highest scientific literacy level and production professionals in agriculture, forestry, animal husbandry, fishery and water conservancy have the lowest scientific literacy level. Scientific literacy level has a high correlation with people's interests, attitude and engagement with science and technology issues. The imbalance of scientific literacy status among the Chinese public is bound to bring more complexity to public demands on science communication.

Diversified demand of the Chinese public for science communication

Along with the increasing relationships between science and society, science and the public, the public shows more interest and increasing demands on science and technology-related information. The Chinese civic scientific literacy level has improved significantly. The proportion of adult citizens with basic scientific literacy has increased from 2.25% in 2007 to 3.27% in 2010. Due to the diversity of China's population structure, along with the gradual increase of public attention to science and technology, the Chinese people's demand for science communication is diversified in growth. Findings from the eighth civic scientific literacy survey showed that Chinese public interests in science and technology topics are different. Male citizens, well-educated citizens are more interested in scientific and technological information. Different groups show different interests in new discoveries in science, invention and technology, and medical progress.

As for the response to 'the most interesting information on science development for you', the Chinese public's responses present different clustering characteristics among various social groups. For instance, the groups which are most interested in

medicine and health are the female and the elderly. Female urban residents showed higher interests in information about environmental science and pollution abatement. The youth group is more interested in computer and information technology relevant topics.

The diversity of public demand for science communication is also reflected in the selection of science communication medium According to the survey result, channels used by different groups to obtain scientific and technological information are obviously different. Urban residents make more use of newspapers, Internet and books to obtain scientific and technological information than rural residents. In terms of regional difference, there are more residents in the east who make use of newspapers and Internet than those in the central and west areas. The proportion of young citizens obtaining scientific and technological information with Internet, scientific journals and books is the highest. Citizens who are 30-49 years old tend to obtain scientific and technological information through newspapers. Citizens over 50 years old prefer to obtain scientific and technological information through television, radio and talking with people.

Citizens' participation in science communication activities is obviously different in cities and villages. The survey data show that urban residents participating in large science popularization activities such as science and technology week, science and technology festival and science and technology day account for 28.9% and rural residents account for 19.9%. The proportion of rural residents participating in science and technology consultation (35.1%) and science and technology training (42.3%) is higher than that of urban residents (29%, 30%). However, the proportion of urban residents attending science and technology exhibitions and science and technology lectures is higher than that of rural residents.

People's utilization of science communication facilities is obviously different in urban and rural areas. The average proportion of people visiting science and technology venues is 27%. The proportion of urban residents who have visited is 41.5% and only 20.2% of rural residents have visited relevant science and technology venues. 64% of urban residents have

used public libraries or reading rooms and 42.5% of rural residents have done this. As for the reason for not going to science and technology museums, 28.2% of urban residents' response was 'no facilities locally', while 44% of rural residents' response was the same. The proportion of urban residents who replied there was 'no natural history museum locally' accounts for 33.6% and 48.3% of rural residents. The difference in behaviour patterns among Chinese citizens' engagement in science communication activities illustrates the diversity of public demand on science communication infrastructure distribution and service coverage.

Booming new media intensify the complexity of science communication

The modern information technology revolution opened up a new era of media and new media products. The Internet is gradually replacing traditional media and becoming the major means for Chinese citizens to obtain scientific and technological information. Recently, new media technology represented by mobile terminals has brought revolutionary development to science communication. The CNNIC survey report shows that the scale of China's instant message netizens reached 497 million by the end of June in 2013 (CNNIC, 2013). Interactivity and multi-directionality of communication, fragmentation in language have become core characteristics at the early stage of the new media era. The birth of new media has changed the traditional media work habits and system of expression.

With the rapid development of digital technology and the change in mass media function and role, new media represented by network media has not only changed human beings' means of communication, but also has a tremendous impact on people's words and deeds, and a revolutionary impact on social structure. Combined with the communication function of special linguistic symbols of the new media, the unified science communication context, jointly structured by internal and external factors, form a unique domain of the information age, namely, the science communication context in a digital media communication environment.

The change in social context brought on by new media increases the complexity of science communication relationships. People's cognition patterns, communication models, and habits in obtaining information have changed drastically. Firstly, a lot of people have developed the cognition habit of shallow reading and fragmentary interaction. User groups using spur-of-the-moment instant communication platforms, such as Weibo and WeChat provide the best demonstration in China. Secondly, the traditional linear unidirectional mass media have been marginalized. According to a recent DICC report, TV ratings dropped 13% in 2011 in China. There were 40 million Chinese people saying that they would no longer watch television, including more than 65% young people.

New media have brought new challenges to China's science communication. The gradual decline and marginalization in public perception of the traditional paradigm of science communication could lead to public alienation from science. Major bodies in Chinese science communication are under pressure and weakening, and some new little-known science communication organizations may obtain a central position in people's science life. Therefore, the question of how to approach the Chinese public accustomed to new media communication and learning must be considered when formulating China's Science Communication strategies.

Localized Science Communication Strategy

The policy system of science communication in China

The strategy of China's science communication policy

The science communication policies in China are driven by national demand and the requirements of the public. It not only has to adapt to China's unique social context, but also satisfy the diversified demand from the public in science communication.

These policies are promoted by government sectors after introduction and mobilizing the participation of various social organizations. Government and social organizations jointly build various activity platforms so as to enable the public to participate in science communication events. The feedback and new

demand of the public are formed in the process of participating in science communication activities as well as becoming the impetus for the introduction of new policies.

To fully mobilize the power of social participation, China adopts the practice pattern of large scale units and cooperates across the whole country. At present, there are over 20 national ministries and commissions, research institutions, non-governmental organizations, such as Ministry of Science and Technology, Ministry of Finance, Ministry of Agriculture, Ministry of Education, Chinese Academy of Sciences, China Association for Science and Technology, etc., which have participated in the social undertaking and played a dominant and impelling role. Many large social works of science communication have been launched by one or several of them with assistance from other relevant organizations. At the same time, these organizations mobilize other social agencies to set up a broad platform for the public to participate in science communication.

A science communication strategy applicable to different target groups

In order to adapt demand from different groups in science communication, current science communication policy in China has formed approaches to implementation on the basis of five action plans for scientific literacy improvement in target groups, and five foundation projects of science communication capacity construction. The five target groups include teenagers, farmers, the production workers, leading cadres and civil servants, and urban community residents. Teenagers are receiving basic education in the process of the capacity building of scientific literacy. Farmers make up the major portion of the population in China, who are the builders of a new socialist countryside and the group with less educational opportunities. The production workers are the main practitioners and creators of modern life and modern production. Leading cadres and civil servants are the main practitioners in providing public service, who may have a crucial effect on the sustainable development of China civic scientific literacy in the long run. The community residents are emerging urban subjects formed in the process of the

accelerating period of China's urbanization at present. Science communication modes and plans are respectively designed with regard to five target groups to meet differentiated demands in science communication in different groups.

Farmers' demands on science communication not only embody the diversified character of the Chinese public, but also reflect its unbalanced situation. Therefore, science communication targeted at farmers pays more attention to the construction of rural science and technology training systems, the implementation of rural science and technology communication activities, rural science and technology service medium development, the promotion of rural science and technology model projects (science and technology training, science communication activity, science and technology service and pilot sector establishments) to improve local farmers' production and their quality of life. Science communication to farmers should not only attach importance to improving farmers' agricultural practical technology, but also encourage them to enhance capacity to undertake non-agricultural industries. For example, the 'science popularization plan for benefiting farmers and prospering villages' is a large science communication project jointly implemented by the China Association for Science and Technology and the Ministry of Finance, targeted at farmers nationwide. This project replaces the subsidy method of reward and evaluates mechanisms, and screens and commends a batch of advanced groups and individuals with outstanding contribution in the publicity of S&T in villages, as well as with strong regional demonstration functions and strong activity in their local area. This project stimulates farmers to publicize and popularize science and technology via a 'model demonstration' pattern. The target of the 'science promotion popularization plan for benefiting farmers and prospering villages' project is to enhance more and more farmers' interest, awareness and consciousness in studying and applying science and technology, and lead them to improve their scientific literacy and capacity to cast off poverty, develop production, protect the environment and improve their quality of life. It aims to lead farmers to set up scientific, civilized and healthy production modes and lifestyles, and boost rural development in economy and society.

The multi-level infrastructure system of science communication in China

'Science communication infrastructure' refers to the venues and places with the function of science popularization service, and open to the public for visiting and learning, such as science museums, science centers, science reading room and so on. 'Science communication infrastructure' is not only an important entity underpinning the science and technology popularization enterprise, but also a material support platform for providing science communication services to the public, the crucial component of the public cultural service system, and the construction of national science communication capability. Compared with the rest of the world and according to the reality of public demands in China, China's science popularization infrastructure still has a long way to go, specifically in terms of the total amount, uneven regional distribution, shortage of funds, insufficient exhibition and education resources, and lack of professionals. Mainly with regard to the insufficient amount and uneven regional distribution of the science communication infrastructure, China's science communication services have not yet benefited all citizens. As data from the 8th Chinese civic science literacy survey indicates, there is still a considerable proportion of the public who did not visit science communication facilities last year either because there were none locally or because they did not know where the facilities were located. The problem of uneven regional development has not been fundamentally resolved, and the amount of science communication infrastructure remains relatively small in economically backward areas where there is a scarcity of science education resources. In terms of the distribution of China's existing science popularization infrastructure, there is a clear difference between the eastern and the western and central regions, and between developed and less developed areas. Science and technology museums and popular science education bases in the 11 eastern provinces out of 31 provinces in total and municipalities account for half of the country's total, while there is a severe shortage of science popularization infrastructure in the western and central regions, which lag behind in constructing such infrastructure.

In order to counter the imbalance in regional development and meet the challenge brought by new media technology, the construction of China's science communication infrastructure should adopt the strategy of different levels, various kinds and gradual development. Existing science popularization facilities in China are characterized by various types and different forms, including science and technology museum mainly serving large and medium-size cities, science popularization education bases[1] relying on collaboration with other agencies and science popularization facilities targeted at grass-root areas. The science communication infrastructure in China also covers both entitative science museums and the mobile facilities of science popularization caravans moving about in urban and rural areas. It also includes online science communication facilities such as Internet-based science communication websites and digital science and technology museums.

In recent years, construction of science communication infrastructure in China has made great progress. To begin with, a fairly large number of science popularization infrastructure facilities have come into existence in China. At present, there are more than 600 large-scale science and technology museums, including science museums, natural history museums and engineering museums. There are medium-size or large science and technology museums in almost all municipalities and provincial capitals, and even many prefecture-level cities boast of such museums. There are now as many as 20,000-odd accredited popular science education bases in China, of which 650 have been designated as national popular science education bases,1390 have been designated by provincial science and technology associations, and 26,000 have been designated by science and technology associations at prefecture and county levels. Included are youth science and technology education

[1] The Science Popularization Education Base is a Chinese localization sort of science communication organization. The Science Popularization Education Base refers to science communication sectors relying on various science agencies such as teaching sectors, R&D institutions, High-tech production sectors and science service sectors. The Science Popularization Education Base is open to the social public and provides relevant science communication services (Ren & Li, 2011).

bases and rural popular science demonstration bases, as well as popular science education bases for many industries. Statistics indicate that now in China, there are 1500 mobile science popularization facilities, including more than 380 science popularization caravans dispensed by the China Association for Science and Technology, 200-odd science popularization vehicles allocated by local science and technology associations, and over 900 such vehicles from other departments.

Secondly, the science communication infrastructure in China has undergone noticeable improvement in terms of content and service capability, its distribution has been becoming increasingly reasonable, and its construction has been accelerating continuously. As part of science communication infrastructure, exhibition and education resources have reached a sizable amount, and with it educational exhibits are no longer merely specimens, pictures, and material objects. Instead, more and more interactive, experiential exhibits have been appearing in science communication infrastructure. Such science communication activities as themed exhibitions, temporary exhibitions, travelling exhibitions and popular science lectures are on the increase. Up to now, the number of the beneficiaries of science and technology museums in China has reached tens of millions and the opportunity for the public to utilize the science communication infrastructure has evidently increased. According to data from the 8th Chinese civic science literacy survey in 2010, 27% of Chinese citizens have visited science and technology museums, up 17.7 % over 2005 figures (Ren & Zhai, 2012).

In light of the social context of diversification of the public's demand for science communication in China and unbalanced regional development, China attaches importance to the development of science communication infrastructures to build a 'Chinese modern science and technology museums system'. The Chinese modern science and technology museum system includes various science and technology museums (entitative science and technology museums, mobile science and technology museums, science wagons and digital science museums) as a platform, makes overall planning, develops harmoniously, makes a world-class public cultural service

system conforming to China's social context, satisfies the science communication demands of different regions and different groups, and provides scientific education for the public as well as services.

Discussion

The author puts forward that social context research should be paid more attention to in the science communication field, and proposes to take social context as a kind of research perspective and analysis methodology to tackle the issue of strategic planning in science communication:

Firstly, according to a brief literature retrieval conducted by the author, there are limited papers in the journal *Public Understanding of Science* and *Science Communication* with the topics around the social context of science communication. Researchers should have attached more importance to the study of the social context of science communication, and discuss its shaping and impact on science communication modes, frameworks and system models. The effort should be to bring social context into the research on science communication modes so that it can theoretically enrich the research on diversified science communication modes under different social contexts across continents. In terms of practical application, the analysis of the social context of science communication will provide strong support for regional science and technology decision-making.

Secondly, if the social context has significant impact on science communication and its strategy choice, it is necessary to conduct in-depth study on the definition and description on the social context of science communication. There have been plenty of theoretical or empirical researches focusing on the definition, target, content, and patterns of science communication. However, the definition and description of social context of science communication are still yet to be explored. It is interesting to establish an index system in order to describe the scenario status of social context of science communication of a country or region. And then, in the author's view, it should go further in observing the similarity and difference in the factors

influencing social context of science communication among countries and regions.

Finally, supposing that the impact of social context on science communication is obvious and profound, the value of comparative study tends to be questioned when that comparative did not put social context as a factor into consideration. Therefore, it is optimistic to expect that fresh information and research perspectives will be brought out when social context is introduced into science communication. As many researchers showed their enthusiasm in international comparison studies on civic scientific literacy monitoring and public attitude towards science, the author believes that the comparative study on social context of science communication will also attract attention of academic circles in near future.

Acknowledgement

Dr LIU Xuan, Dr REN Jie at China Research Institute for Science Popularization, along with YANG Xi at China Association for Science and Technology contributed a lot in the literature and data collection during this research.

References

CNNIC (2013) The 32nd Internet Report: Netizens Scale, available at http://Tech.163. Com/13/0717/13/9407c2dh00094nsi.html (Consulted November 21, 2013).

European Commission (2013) Eu2020, available at http://Ec.Europa.Eu/ Europe2020/Index_ En.htm (Consulted November 11, 2013).

Flowing Population Department of the National Health and Family Planning Commission (2013), Report on China's Migrant Population, China Population Press, Beijing.

Guo G (2002) Context and the Development of Postmodern Philosophy of Science, Science Press, Beijing, 54.

Hu Z (2010) Diversification of Context Study, *Foreign Language Teaching and Research* 3: 161-166.

Huang H and Yu G (2004), Science Communication in Social Context, *Study in Science of Sciences* 22: 345.

National Bureau of Statistics of China (2010) Communique for Main Data of the Sixth National Census in 2010, available at http://www. stats.gov.cn/tjgb/rkpcgb/ qgrkpcgb/t20110428_402722232.htm (Consulted November 21, 2013).

People's Daily Online: The Ministry of Education, The National Per Capita Education Duration Of 8.5 Years, available at http://edu.people.com.cn/gb/ xiaoyuan/8777707.html (Consulted November 20, 2013).

Ren F (2011) Report on Scientific Literacy of Chinese Citizens (Part 2), The Eighth Survey for Scientific Literacy of Chinese Citizens, Popular Science Press, Beijing.

Ren F and Li Z (2011) Annual Report on Development of China's PSTI, Beijing: Social Sciences Academic Press, 345.

Ren F and Zhai J (2012) Science & Technology Communication and Popularization, Beijing: Popular Science Press, 247-248.

Su G and Max W (2004) Re-Study On Chinese Context, Society, 5, 7.

Wei Y & Fei P (2012), Report On The Development Of China By The Renmin University Of China, China Renmin University Press, Beijing.

Yidong W (2000), Science in Social Context, Studies in Dialectics of Natural, 16, 9, 11-16.

Yu Z (2011), Contextualism As A Scientific Methology, Science Technology And Dialectics, 28, 1, 15-20.

Yue C and Tang X (2005) Development Relationship and Coordination Measures for Western Development and Eastern Coastal Regions, Northeast Economic University Press, 159.