



Research paper

## Discussing Climate Change: Pathways, Origins, Significant Subjects and Developed Guidelines According to Research Taken Place in China

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### ABSTRACT

Discussing climate change can only be achieved if the public understand the severity and the gravity of climate change and modify their behavior in directions that decrease hazardous discharge into the atmosphere and advocate adjustment, whereas the complexity, ambiguity and the vast scope of the issue which encompasses both the earth and the space have caused the obstacles for the understanding of the people of the society, which present a dire need for the crucial Climate Change Communication (CCC). Public's search of knowledge and media application mode is a grave threat which needs to be annihilated for the convincing CCC. The current study has carried out a primary assessment of public's search for knowledge and the application of media based on a national review which was conducted haphazardly of public outlook on climate change in mainland China. Results from the survey exhibit that the Chinese participants use TV as their most significant information seeking route, take into account the science organizations as the most reliable information route, and show little interest in the environmental related news content. Numerical associations between the parameters involved in communication that were mentioned above and consciousness on the subject of the climate change have also been examined. A few suggestions for CCC guidelines are brought forth according to the results of this study.



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### Introduction

Climate change is presently a highly important subject not only in the scientific realm and in the media but also in the mind of the people of the society both in China and around the globe. The media's thorough coverage of global warming and associated matters since the end of the 1980s has brought about global anxiety (Weingart, Engels et al. 2000). The discussion of climate change can be achieved only if the adequate information distribution

to the general public and help them understand the climate threat and aid effective action. Therefore, the significance of having discussions with the public about the climate change and elevating their mindfulness is fully applauded by the Article 6 on Education, Training and Public Awareness of United Nations Framework Convention on Climate Change, which asks governments to establish and enforce educational and public alertness courses on climate change and its impacts, to guarantee public access to

information and to advocate for public to join in discussing the matter (Li 2015).

In environmental science in general and in climate change effects analysis in specific, the complexity, ambiguity and the vast scope of the issue which encompasses both the earth and the space imply a dire need for an appropriate approach of communication (Grannis and Davis).

Susanne Moser also stressed that climate change is a complex matter, with the features of unapparent roots, obscure effects, complexity, ambiguity, without a fast, effortless, and viable remedy and etc., which would make climate change very challenging to address to the general public (Moser 2010). In contrast to many other social problems with which the public may have real-life encounter, climate change is a problem that many come to understand via the media. The media to some extent, as the most important root of information, outlines the severity of the condition for the public (Zhao 2009).

So communication is a crucial means in climate change response for the whole society, Knowledgeable, aspired and dedicated public can help the society to reach our low carbon aim (Li 2015). But Böhm and Pfister accounted that, probably as a result of the press coverage, knowledge about climate change amid uninformed people in the United States, as well as in Europe and South America, is ill-defined and is incorporated with confusions. However, people may not always acknowledge this ambiguousness (Böhm and Pfister 2001). In to achieve more productive results, we need to arrive at resultant communication guidelines. The CCC questions such as the public's information seeking routes and media application, reliable information sources, and observation of climate change news, etc.; therefore, is worthy of research and thorough discussion.

With regards to the pathways for the public access to climate change information, many surveys have discovered that television and daily newspapers are the most dominant routes in what are literally known as 'developed nations'. In 'developing countries' such as in Africa especially in the countryside, radio has been a standard channel using which climate change news is broadcasted (Luganda 2005, Horowitz, Igielnik et al. 2020).

Peter Weingart *et al.*, examined the communication about global warming among science, politics, and the media in Germany from 1975 to 1995 and discovered that there were three isolated conversations on climate change in science, politics, and the mass media, which could bring about the challenges of communication and public's disorientation about the matter and lead to skepticism

about the information sources (Weingart, Engels *et al.* 2000). Eva-Lotta Sundblad *et al.*, examined specialists, broadcasters, politicians, and uninformed individuals in Sweden and discovered that while experts enjoyed the highest level of knowledge and assurance in their knowledge and have uninterrupted access to information in their own field of study, other groups in the society, politicians and public included, are more reliant on information presented by broadcasters through mass media (Sundblad, Biel *et al.* 2009). In US, research discoveries exhibit that Americans accredit the scientists the most and the business organizations are classified as the last within the trust order (Lorenzoni and Pidgeon 2006). In Australia, official organizations (science and education) were the most reliable origins of climate change information, but the people in the society continued to doubt the credibility of some of the information obtained from even these sources (Bulkeley 2000).

On the subject of the public's interest in climate change information, one review indicates that merely 12% Americans show much interest in the information about global warming, whereas 18% participants are not much concerned about the information (Bulkeley 2000). In the Pew Research Center's 2013 policy priorities survey, merely 28% Americans suggest tackling global warming is a leading concern for the president and the congress this year, whereas 85% state that improving the economy is a leading concern (Li 2015).

While extensive research about the CCC in developed countries can be obtained and an array of information about their public's search for knowledge and media application can be accessed, purposeful guidelines have been embraced in order to conclusively communicate the information to the people in the society; not enough information is at hand about the Chinese on the related matter.

China, the world's largest CO<sub>2</sub> diffuser and the biggest developing country with a rising population, is at the moment encountering the unmatched threats of growing its economy, abolishing poverty and elevating the state of the people's lives, while at the same time aggressively fighting climate change (Li 2015). Therefore, investigating how the Chinese public gathers and reacts to climate change information becomes a significant task to uphold while we attempt to realize their level of consciousness and knowledge about climate change. In the research at hand, we bring forth a nationally depictive research of Chinese public belief on climate change in which the communication questions mentioned above were included so that additional research about the connection between individuals' level of

consciousness on the subject matter and exchange of ideas could be taken place.

**Review**

A national review was conducted by China Center for Climate Change Communication from July to September 2012 in mainland China. Because of the prevalence of landline and mobile phone in China, the research was carried out by Computer Assisted Telephone Interviews (CATI). During the procedure, less than 5% of the participants chose ‘unclear of the question’ or ‘no answer’ as their responses to some questions. In an attempt to more vividly exhibit data results, percents of those who chose these two answers were not taken into consideration in the assessment.

The people who took part in the survey were classified into 336 groups according to the 332 prefecture-level sectors in mainland China (including 284 prefecture-level cities, 15 districts, 30 prefectures, 3 areas and 4 municipalities exactly ruled by the central government). The number of samples for each group is in agreement with the population rates of sites. Through haphazard collection of the last few figures of landline and mobile phone numbers and a ratio of 40:60 between the two types of telephones, 4,169 accurate samples were incorporated in the CATI part of the review and all samples are in this way reliably chosen in a haphazard manner.

The questionnaire survey which included the majority of questions was used to build an all-

inclusive account of Chinese views of climate change involving personal views, risks, interests, strategy groundwork, and individual deeds. Furthermore, CCC questions were specifically added in the final part to more accurately determine the public’s search for knowledge and media application which depicts our purpose in this study. SPSS software was employed to examine and underline any numerical correspondence between the different involving factors, and to create graphs and tables to better represent the results.

**Results and Discussion**

*A. Pathways of Searching for Knowledge*

A greater number of participants could access information about climate change using different pathways exhibited in Table I, which entails TV (93.8%), cell-phone (66.1%) and internet (65.0%) as the most fashionable means of accessing information. Family and friends are considered information seeking routes as well, which accounted for 54.5% among the participants in the research. Newspapers, mobile media outlets, broadcasting stations, and magazines, all of which are considered as conventional media outlets, create some impact as well, but are not as impactful as the modern media outlets when it comes to coverage. Furthermore, some participants can access information in connection with the climate change via disinformation enterprise, personal encounters, education and movies.

Table 1: Pathways of Searching Knowledge About the Climate Change

Pathways of Searching for Knowledge	Percentage
TV	92.7
Cell phone	65.9
Internet	64.89
Family and friends	53.36
Newspaper	48.09
Mobile Outlets	38.01
Radio	33.4
Magazine	29.82
Disinformation Enterprise	27.98
Personal Encounters	2.38
Education	1.68
Movies	0.12
Total	458.33

Table II presents a numerically important distinction between participants who live in the cities and the

people who live in the countryside in China with regards to pathways of searching for knowledge

about the climate change, with 4.914 average on avenues for acquiring the climate change information for Chinese people who live in the cities in contrast with the average of 4.254 for the people who live in the countryside. The majority of pathways of seeking information in the areas located within the cities are

more easily accessed than the areas located in the countryside with the exception of TV, family and friends (interpersonal communication) which in part represent the two most effective communication pathways in the countryside of China.

Table 2: Patways Of Searching For Knowledge (According To The Places People Live)

Internet	72.2%	55.3%
Cell phone	67.2%	64.7%
Newspaper	55.9%	39.8%
Family and friends	55.6%	53.1%
Mobile Outlets	41.3%	33.6%
Radio	35.9%	30.6%
Magazine	34.7%	24.0%
Disinformation Enterprise	31.3%	26.0%
Others	4.1%	3.6%
Total	491.4%	425.4%

Table 3 depicts a numerical relationship between the climate change information seeking routes and the personal consciousness on the subject of the climate change (evaluated at four levels) in

Chinese participants; the more available routes they possess on the subject of the climate change information, the higher self-reported individual's level of consciousness on this matter.

Table 3: Pathways Of Searching for Information and Individual's Level Of Consciousness

Individual's Level Of Consciousness	Pathways of Searching for Information
Know a lot	5.3
Know something	4.7
Know a little	4.5
Never heard	3.8
P	0

#### *Faith in the Roots of Information*

With an attempt to contrast the degrees of faith in six distinctive climate change information channels, we designated 1, 2, 3 and 4 points to the choices of 'highly trust', 'relatively trust', 'do not trust much' and 'do not trust' respectively. Table 4

exhibits that the participants have faith in the information presented by science organizations the most, and the government followed by the media, family and friends with non-governmental organizations (NGOs) and business related activities well behind.

Table 4: Faith in varying origins of information

Origins of Information	Mean Value	Standard Variance
Science Organizations	3.2	0.6
Government	3.1	0.6
News Media	3.0	0.6
Family and Friends	2.8	0.7
NGOs	2.1	0.8
Business Activities	2.2	0.7

Another difference in the reliable information sources between the participants who live in the cities and those who live in the countryside is exhibited in Table 5; the people who live in the

cities have more faith in NGOs, despite being less unsuspecting of government and science organizations in comparison with the people who live in the countryside.

Table 5: Faith in the Varying Sources of Information (Based on the Place They Live)

Place	Science Institutes	Government	NGOs
Urban	3.1	3.0	2.4
Rural	3.1	3.2	2.3

Table 6 describes the differences in gender; men have less faith in all types of information outlets in comparison with the women participants. They

specifically are skeptical of the businesses and their activities.

Table 6: Faith in Varying Information Outlets (Gender)

Gender	Science	Government Organizations	Family and Friends	Business Activities
Female	3.2	3.1	2.8	2.4
Male	3.1	2.9	2.8	2.1

**B. Interest in the Information Related to the Climate Change**

Table 7 exhibits that normally social news attracts the highest level of attention of the participants, at 29.3%, followed by economic news

(25.2%), political news (15.3%) and entertainment (11.5%) along with climate change related news (9.2%) they present more distinctive five areas of interest for the public.

Table 7: Interest in Selected Categories of News

Information Seeking Routes	Percentage
Social News	28.9
Economic News	26.1
Political News	16.1
Entertainment	11.9
Climate Change Related News	9.3
Science & Technology News	8.1
Popular Culture	1.7

Table 8 details a numerical correspondence between the level of interest in climate change and attention to environmental related news. The participants who are deeply interested in the climate

change exhibit the highest level of attention to environmental related news, then the different levels of concern is followed by the complementary interest in the environmental related news.

Table 8: Levels of Concern and Interest in the Climate Change News

Level of Concern about Climate Change	Interest in the Climate Change News
Very concerned	14.2%
Somewhat concerned	7.3%
Not much concerned	4.0%
Not concerned at all	2.1%

**Conclusion**

The research at hand has carried out a primary assessment of the Chinese public's access to the climate change information routes, reliable information channels and interest in environmental related news content according the national review. We have employed a special review that asks the

Chinese participants directly about their mental outlooks of CCC questions for the first time in China. The chief results indicated that some communication guidelines need to be employed to better broadcast the climate change information to the general public. However, these guidelines can only be productive if they are in agreement with the traits the of Chinese

participants when it comes to searching for knowledge and media application that were mentioned above.

It is discovered that there is a numerical correspondence between the public's climate change information seeking routes and their level of consciousness; therefore, it might suggest the more routes presented to the public, the higher their consciousness is to be elevated on this matter. We also observed that a large portion of the population have access to the climate change information. Among all the information routes, the conventional media outlets such as the television and newspapers were almost omnipresent for the CCC which nonetheless represent the most sought after pathways for acquiring knowledge for the Chinese participants. However, it should be pointed out that the media outlets such as cell phone and the internet, shaping a large percentage in the current CCC media report, could become the most sought after media outlets in the future considering the current vast population of the internet users in China. Most recent record exhibits that China had 632 million internet users and 527 million mobile internet users, and the percentage of Chinese users accessing the internet via mobile has expanded to 83.4 percent as of June 2014, for the first time evolving beyond the percentage of users who access the internet via PCs (80.9 percent) (Li 2015). This account implies that cell phone has become the most important information seeking route for the Chinese as it is explained by the CCC. Alongside the most conventional communication routes, other interpersonal communication (family and friends), intrapersonal communication (personal encounter) and group communication (education) routes require our full attention as well as they are widely used specifically in the countryside of China where the modern media outlets are proportionately underdeveloped and the pathways for acquiring knowledge are scarce in contrast with the cities. As the people living in the countryside are often being labeled as the ones who are "closest to the manifestations of climate change" and in "the first line of participation", they are more inclined to acknowledge the information that is brought about by the pathways that were mentioned above (Manandhar, Vogt et al. 2011).

The current study exhibits that scientific organizations (scientists) were in most cases regarded as much more reliable sources of environment related knowledge than any other sources. The challenges brought about by the subject of the climate change alongside the scientific ambiguities which they entail, and the obscure impacts of it which cannot be employed currently to explain this phenomenon, place the scientific organizations as the most reliable

sources of information as they are official organizations having access to first-hand information on this matter. In China, all the while that the voice of scientific communities constantly in line with the government on the matters related to the climate change, they broadcast the climate change information in accordance with each other, and this leads to the government becoming the most important information source. Therefore, it is not at all unanticipated that the Chinese' second reliable source of information on climate change is considered the government. Contrary to other surveys taken place in the developed countries, Chinese respondents were found to be gravely skeptical of politicians and the government as trustworthy sources of information about climate change (Stolpe). A significant indication for the CCC is to maintain the unbiased discourse of science and to further develop the relationship between the scientific communities and the public; for instance, initiating more programs to maintain the conversation, pointing out to more scientific surveys to enlighten and educate the people in the society, and so on. It is also observed that by and large the Chinese participants have less faith in NGOs and business activities as two sources of information. Parameters revolving around the population analysis such as living quarters and gender require attention as well in the CCC for the proper classification of the participants. The participants who live in the cities trust NGOs more than the participants who live in the countryside which in turn explains the speedy growth of international NGOs (Greenpeace China, World Wildlife Fund China, Friends of Nature and Oxfam Hong Kong etc.) and their blooming enterprise centered on climate change in the cities of China. Therefore, application of CCC information sources depending upon their demands can vary among different participants.

It was also observed that the Chinese participants are much interested first in the social news, then the political, economic, and entertainment news; which indicates their interest in the climate change related news is the very least. Much of Chinese population view climate change as a obscure issue that will initially impact future generations in other countries. As a result, climate change is typically classified as a comparatively low-priority issue for the public in contrast with a range of other national problems. Therefore, the climate change platforms are required to deliver messages in ways that are compatible with the attention, interests and view of the participants. For instance, the current attempt to draw the attention of the Chinese about climate change and its associated air pollution problem by employing the public health platform

during the time of drastic haze which happened in the China big cities, helped to associate the tackling of climate change with the rise in specific illnesses and led to public anxiety about this matter. Individual encounter with climate change helps people become more certain of its gravity; therefore, addressing actual circumstances in which public have personally encountered climate change might be the most effective strategy in order to direct the Chinese's attention towards the climate change.

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